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THE UNIVERSITY OF ALBERTA

THE RELATIONSHIP OF ANXIETY AND COGNITIVE STYLE  
TO IRRATIONAL BELIEFS

BY



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A THESIS

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled "The Relationship of Anxiety and Cognitive Style to Irrational Beliefs" submitted by William J. Winship in partial fulfilment of the requirements for the degree of Master of Education.





## ABSTRACT

The present investigation was designed to provide evidence of the relationship between the acceptance and maintenance of irrational beliefs and anxiety-proneness. It was further hypothesized that persons susceptible to irrational thinking would exhibit a characteristic perceptual-cognitive style -- field dependence.

Tendency to irrational thinking was operationally defined by scores obtained on the revised (1970) Zingle Irrational Ideas Inventory. Anxiety-proneness was defined in terms of scores on five paper-and-pencil anxiety questionnaires: the IPAT Anxiety Scale and four subtests of the Objective Analytic Anxiety Battery. Field-dependence was operationally defined by scores on the Hidden Figures Test, Cf-1.

Undergraduate students in the Faculty of Education at the University of Alberta served as subjects for this study. The total number was 77; 52 females and 25 males. From this sample, 21 subjects were designated as a high irrational belief group and 21 subjects were designated as a low irrational belief group on the basis of their scores on the I-I Inventory. These groups were then compared on seven variables (five measures of anxiety factors, field-dependence, and age) using the formula for "t" tests between independent samples. Pearson Product-Moment correlations were calculated for twenty-seven variables (seven major variables plus their respective subtests) for all subjects. The sample was



divided into male and female subjects and "t" tests and Pearson correlations were calculated. A cluster analysis of the I-I Inventory was carried out employing a procedure described by Gupta (1968).

The results revealed that the high irrational belief group in every case exceeded the low irrational belief group in anxiety-proneness. Two measures of anxiety (IPAT Anxiety Scale and OA241G) were very significantly related to amount of irrational ideation ( $p < .001$ ). One measure of anxiety (OA244G) was significant at  $p < .05$ . The two remaining measures of anxiety did not obtain statistical significance though a definite trend in the posited direction was noted (OA242G -  $p < .09$ ; OA243G -  $p < .07$ ). There did not appear to be a relationship between method of field approach and tendency to irrational thinking ( $p = .375$ ).

The cluster analysis indicated the I-I Inventory as presently constituted appears to reflect several psychological traits which, in turn, are related to the tendency to incorporate and act upon irrational concepts. However, the need for further research to clarify the psychological significance of scores on the I-I Inventory was suggested by the cluster analysis and correlational data. Some contamination of items on the I-I Inventory and the anxiety scales was suspected, though further research is required.

The research implications were discussed in terms of rational-emotive psychotherapy and the use of the I-I Inventory as a screening device by counsellors.



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## CHAPTER I

### INTRODUCTION

In 1955 Albert Ellis formulated his basic theory and practice of rational-emotive psychotherapy. Since that time he has written scores of professional articles and books expanding, elaborating, and defending his theory and therapy. His most comprehensive presentation is found in his book, Reason and Emotion in Psychotherapy (1962). Despite the critical attention given his work little empirical research has been conducted to verify or reject the hypotheses and assumptions implicit in his theory. Several research projects at the University of Alberta have attempted to establish some empirical support for Ellis' contention that illogical thinking and irrational ideation are basic causes of emotional disturbance or social maladjustment (Zingle, 1965; Conklin, 1965; Hoxter, 1967; McPhail, 1969; Taft, 1968; Fox, 1969; Sanche, 1968). While the results of this research have been somewhat inconclusive, the findings do imply support for aspects of Ellis' theory.

Zingle (1965) devised a 122 item inventory (I-I Inventory) which provided an estimate of a person's total irrational ideation as conceived and delineated by Ellis. This instrument was revised by Allen (1970) so that it is a more homogeneous, reliable measurement of irrational tendencies. The development of this objectively scored





diagnostic instrument makes possible the testing of specific hypotheses derived from Ellis, and as yet, not empirically validated.

The purpose of the present study was to investigate the hypothesized relationship between irrational thinking and emotional disturbance with specific reference to the relationship between irrational ideation and anxiety factors. Furthermore, the present study attempted to demonstrate that the inculcation of irrational attitudes is related to super-ordinate perceptual-cognitive structures. Specifically, it was postulated there is a relationship between a person's "perceptual-cognitive style" and his vulnerability to irrational thinking as defined by Ellis.

A state-trait model of anxiety, based on Spielberger's model (1966) has been proposed to explain the manner in which irrational ideas predispose an individual to the experience of anxiety. In choosing anxiety factors as the focus of attention there is no implication that there is convergence between anxiety and neuroses. However, "anxiety" does present as a central explanatory concept in much discussion of psychopathology and personality, though Ellis uses the words neuroses or neurotic in describing the behavior of persons who have internalized irrational beliefs. Anxiety is seen as a symptom of distress which has its roots in the person's acceptance and maintenance of irrational beliefs.



The present research also allowed several auxiliary hypotheses to be explored. By the use of cluster analysis and correlational studies an attempt was made to provide greater clarity to the meaning of scores on the I-I Inventory. From previous research (Allen, 1970; Taft, 1968; McPhail, 1969; Hoxter, 1967), there was some suggestion that the I-I Inventory might be measuring other aspects of personality than merely extent of irrational attitudes; and secondly, it was suspected there was some contamination between items on the anxiety inventories and the I-I Inventory which spuriously raised their correlation and clouded the meaning of the total test score on the I-I Inventory.



## CHAPTER II

### SUMMARY OF RELATED RESEARCH AND THEORY

#### A. Rational-Emotive Psychotherapy

Rational-emotive psychotherapy rests on the assumption that psychological disturbances are the result of illogical and irrational thinking. One of the basic tenets of Ellis' theory is that human thinking and emotion are not two disparate or different processes. In fact, Ellis (1962) suggests they overlap and in some respects are essentially the same thing. Ellis discussed four basic processes in the human being: perception, movement, thinking, and emotion. It is his contention that thinking and emotion, like the other two processes, are integrally related. Therefore, Ellis suggests that disordered behavior and emotion can often be ameliorated by changing the person's thinking.

Ellis (1962) contends that what we call emotion is nothing more than a biased, prejudiced or strongly evaluative kind of thought. It is a "relatively uncalm, passionate, and strong evaluating of some person or object (p. 47)." Sustained emotions are the result of relatively reflective appraisals (assuming that no physiological condition is a direct cause of the emotion, for example, chronic and severe pain as a consequence of an accident or terminal disease.)



Thus, for Ellis, emotion is a kind of strongly slanted or biased and highly personalized form of thinking. It is accompanied by gross bodily reactions and leads to some kind of action (positive or negative). Ellis (1962) contends that thinking is a "more tranquil, less personalized, less somatically involved (or at least, perceived) and less activity-directed mode of discrimination (p. 48)."

Ellis admits there are at least four ways to influence emotions. However, he says little about bio-physical and sensori-motor techniques of therapy. Instead, he emphasizes the rational approach; that is, the use of the cerebral process (reflecting, thinking). In his discussion Ellis also neglects the importance of perceptual attitudes in the development and maintenance of irrational thinking and disturbed emotions. The present study attempted to demonstrate the link that is hypothesized to exist between these personality variables (that is, irrational thinking and perceptual-cognitive dimensions).

If, as Ellis (1958) contends, thinking normally accompanies emotion, then it follows that most of what is termed "emoting" takes the form of self-talk or internalized sentences. In other words, "for all practical purposes, the sentences that human beings keep telling themselves are or become their thoughts and emotions (p. 36)." Positive emotions usually take some form of variation of the phrase "This is good for me!" Negative emotions take some form of





the phrase "This is bad for me!" Ellis (1962) states that without the conscious or unconscious formulation of such evaluative sentences much of a person's emoting would not exist. By controlling one's thinking, Ellis states, one can control one's emotions. In other words, by changing a person's self-talk or internalized sentences the therapist removes or alters the thinking productive of emotional disturbance. Neurotic behavior is a consequence of an individual continually reindoctrinating himself in an unreflective, autosuggestive manner. Thus, an individual's self-defeating fallacious ideas lead to neurotic behavior.

Ellis (1962) proposes an "A-B-C" theory of personality and emotional disturbance. In this schema A represents what a person perceives - a stimulus; B is what a person tells himself about what he perceives - self-talk, internalized sentences; and C is the reaction of the person, not to A, but to B. Thus, "it is almost always B - the individual's beliefs regarding, attitudes toward, or interpretation of A - which actually lead to his reaction, C (p. 215)." It is rarely the stimulus, A, which gives rise to a human emotional reaction. The self-sentences, the irrational interpretation at point B, creates the disturbance.

Every individual has a basic belief system, a philosophy of life he strongly believes. It is this set of philosophical assumptions which the individual applies at point B when presented with a stimulus A. If this attitude



structure includes many irrational or illogical self-sentences, disturbed emotionality or anxiety are the consequence. In his rational-emotive psychotherapy Ellis attempts to make his clients aware of their self-defeating, negative sentences at point B. Moreover, he persistently challenges and attacks these irrational beliefs, and in addition, induces his clients to take direct action to confront these fallacious assumptions. He thereby helps his clients decondition themselves from both an ideological and behavioral standpoint (Realist, 1960).

Ellis hypothesizes that it is almost impossible for a person raised in our society to avoid falling victim to several fallacious ideas. These irrational ideas, he suggests, are instilled by the individual's parents, his general culture, and the media of mass communication. In his book Reason and Emotion in Psychotherapy Ellis outlines eleven major illogical and irrational ideas he finds prevalent in Western society, all of which he claims lead to neurotic behavior. These ideas will be briefly presented here without the justification and many corollaries he elaborates upon in his book.

Irrational Idea No. 1. The idea that it is a dire necessity for an adult human being to be loved or approved by virtually every significant other person in his community.

Irrational Idea No. 2. The idea that one should be thoroughly competent, adequate and achieving in all possible respects if one is to consider himself worthwhile.



Irrational Idea No. 3. The idea that certain people are bad, wicked or villainous and that they should be severely blamed and punished for their villainy.

Irrational Idea No. 4. The idea that it is awful and catastrophic when things are not the way one would very much like them to be.

Irrational Idea No. 5. The idea that human unhappiness is externally caused and that people have little or no ability to control their sorrows and disturbances.

Irrational Idea No. 6. The idea that if something is or may become dangerous or fearsome one should be terribly concerned about it and should keep dwelling on the possibility of its occurring.

Irrational Idea No. 7. The idea that it is easier to avoid than to face certain life difficulties and self-responsibilities.

Irrational Idea No. 8. The idea that one should be dependent on others and needs someone stronger than oneself on whom to rely.

Irrational Idea No. 9. The idea that one's past history is an all important determiner of one's present behavior and that because something once strongly affected one's life, it should indefinitely have a similar effect.

Irrational Idea No. 10. The idea that one should become quite upset over other people's problems and disturbances.

Irrational Idea No. 11. The idea that there is invariably a right, precise, and perfect solution to human problems and that it is catastrophic if this perfect solution is not found.

Anxiety is a primary symptom of emotional disturbance, and one which Ellis assumed would follow the application of an irrational belief system. The present study tests the hypothesis that anxiety will be associated with extent of irrational thinking as implied by Ellis. The extent of irrational ideation will be determined by scores on the revised Zingle Irrational Ideas Inventory which is based upon Ellis' delineation of the major irrational ideas prevalent in our society.





## B. Anxiety

Anxiety is found as a central explanatory concept in almost all contemporary theories of personality. Despite its prominence in psychological theory there has been little or no agreement on its definition, and despite the vast empirical research in the past twenty years there have evolved few acceptable instruments to measure "anxiety". Nonetheless, Cattell and Scheier (1958) report they "counted more than 120 personality-type tests which have claimed to measure anxiety (p. 352)." Thus, there remains considerable controversy regarding the nature of anxiety, the stimulus conditions that arouse it, and the experiences which make individuals more or less vulnerable to it.

Although the concept of anxiety has many historical antecedents, Sigmund Freud provided the first explanation in the context of psychological theory. In his early formulations Freud conceived of anxiety as an unpleasant affective state or condition which resulted from the discharge of repressed, unrelieved somatic sexual tensions (libido). Later modifications saw Freud propose a more general conceptualization of anxiety in which its functional utility to the ego was stressed. He conceived of anxiety as a signal of present or impending danger. He differentiated between objective and neurotic anxiety on the basis of the source of the danger (that is, from the external world or from internal impulses). Anxiety, therefore, served a dual





function: as a signal of danger and as a symptom (that is, the end product of the breakdown of integration). Freud (1936) concluded that anxiety was the "fundamental phenomenon and the central problem of neurosis (p. 85)."

Various alternative explanations have been offered since Freud proposed his theory of anxiety. Much discussion has focussed on differentiating anxiety from fear, on distinguishing between conscious and unconscious anxiety and bound and free-floating anxiety. May (1950) concluded that anxiety was the "apprehension cued off by a threat to some value which the individual holds essential to his existence as a personality (p. 191)." Korchin (1964) suggests anxiety is a state of apprehension, foreboding, a dread, seemingly without appropriate stimulus. Sullivan (1953) conceived of anxiety as an intensely unpleasant state of tension arising from experiencing disapproval in interpersonal relations. Mowrer (1950) proposed a guilt theory in which he states that "anxiety comes, not from the acts which the individual would commit but dares not, but from acts which he has committed and wishes he had not (p. 537)." Tomkins (in Spielberger, 1966) presents a conceptualization of anxiety as a negative affect in which anxiety is subsumed under the affect fear-terror. He considers anxiety as one of the major affects and he sees no theoretically useful distinctions between fear and anxiety.



Based on their extensive factor analytic studies of anxiety variables Cattell and Scheier (1966) suggest anxiety has the following general characteristics: tension and emotionality, guilt and self-depreciation, irritability, susceptibility to embarrassment, loneliness and separation, high expressed sex drive, and some suspicion and hostility. Cattell (in Spielberger, 1966) suggests that "anxiety arises from a threatened deprivation of an anticipated satisfaction when the threat does not carry complete cognitive certainty (p. 47)." This postulate assumes a relation between anxiety and ergic tension level. He identified several other component factors in anxiety: objective uncertainty of reward, uncertainty of reward through ergic variability, cognitive failure to focus probabilities, and percentage magnitude of anticipated actual deprivation or loss.

Spielberger (1966) presents a conceptual framework for viewing theory and research on anxiety phenomenon in which he advances a state-trait model of anxiety. He suggests that it is meaningful to distinguish between anxiety as a transitory state and as a relatively stable personality trait. As well, he indicates it is necessary to differentiate between anxiety states, the stimulus conditions that tend to evoke them, and the defenses that serve to avoid them. Spielberger states,

"that anxiety states (A-states) are characterized by subjective, consciously perceived feelings of apprehension and tension, accompanied by or associated with activation or arousal of the autonomic nervous system.



Anxiety as a personality trait (A-trait) would seem to imply a motive or acquired behavioral disposition that predisposes an individual to perceive a wide range of objectively non-dangerous circumstances as threatening, and to respond to these with A-state reactions disproportionate in intensity to the magnitude of the objective danger (p. 17)."

Figure 1 presents a schematic representation of Spielberger's trait-state conception of anxiety.

Spielberger hypothesizes that,

"the arousal of A-states involves a sequence of temporally ordered events in which a stimulus that is cognitively appraised as dangerous evokes an A-state reaction. This A-state reaction may then initiate a behavior sequence designed to avoid the danger situation, or it may evoke defensive manoeuvres which alter the cognitive appraisal of the situation. Individual differences in A-trait determine the particular stimuli that are cognitively appraised as threatening (p. 17)."

Spielberger speculates that A-trait involves a "fear of failure" motive as suggested by Atkinson (1964). A-trait is conceived as a latent predisposition to respond in a certain way if sufficiently stressful stimuli are present. A-state refers to processes taking place at a given moment at a given level of intensity. He compares A-state and A-trait to the concepts of kinetic and potential energy.

The model proposed by Spielberger appears consistent, in a general sense, to Ellis' A-B-C theory of personality and emotional disturbance. However, Ellis' model does not include the defensive mechanisms and internal controls implied by Spielberger. Nonetheless, each writer attributes considerable importance to the cognitive appraisal intermediate between perception and overt behavior. For this





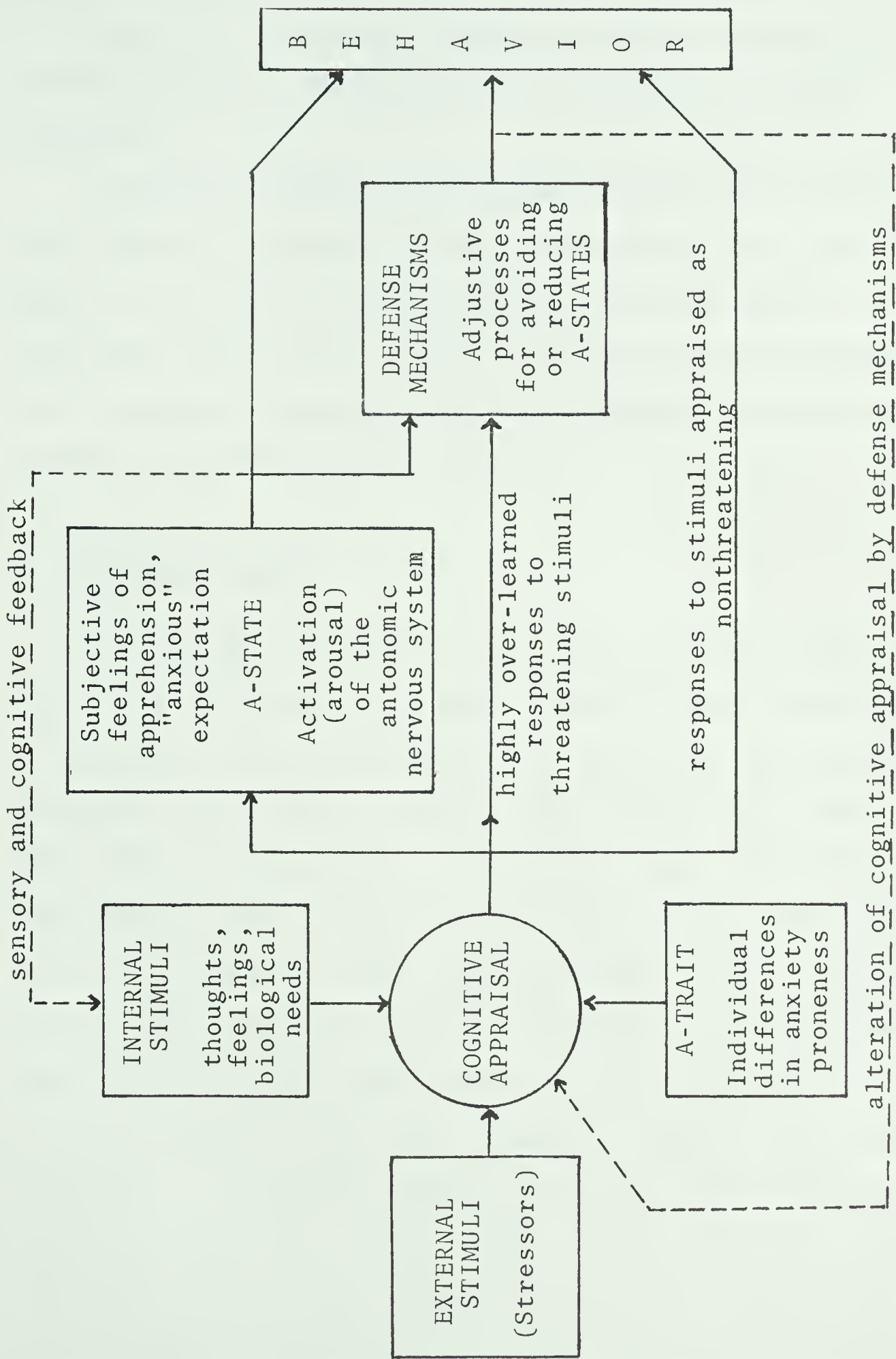


Figure 1. Spielberger's Trait-State Model of Anxiety





reason it should be expected, as Ellis' contends, that particularly self-defeating, illogical premises should have a prominent role in determining an individual's anxiety proneness.

The present study incorporated measures of anxiety which reflect primarily A-trait characteristics. One would expect, from Ellis' theory, that the inculcation of irrational ideas would result in greater anxiety-proneness and in a greater predisposition to respond to certain interpersonal situations with A-states.

### C. Cognitive Style

Considerable research in the last two decades has involved the delineation and measurement of broad perceptual and cognitive structures which are related to personality variables (for example, Witkin, 1948, 1950, 1952, 1954, 1959, 1962, 1965; Gardner, 1953, 1957, 1959, 1960, 1962, 1964; Kagan, Moss, & Sigel, 1963; Klein, 1954, 1962; Karp, 1963, 1965; Messick, 1964; Messick & Ross, 1962). Although much of this research overlaps and involves similar semantic terms, there is much confusion as to the theoretical clarity of the variables. The terms "cognitive style", "perceptual attitudes", "cognitive control principles" have resulted from this literature. These terms usually refer to stable individual preferences in mode of perceptual organization and conceptual categorization of the external environment.



Witkin (1965) states,

"Recent research has demonstrated that people show characteristic, self-consistent ways of functioning in their perceptual and intellectual activities. These cognitive styles, as they have come to be called, appear to be manifestations, in the cognitive sphere, of still broader dimensions of personal functioning which cut across diverse psychological areas (p. 317)."

Witkin believes people possess measurable cognitive styles which are related to other personality variables in a manner which permits evaluation. He suggests that the developmental progression toward psychological differentiation is expressed in the increasing articulation (that is, analysis and structuring) of experience. He believes there are important individual differences in the pace of development in this dimension and he feels these differences derive from differences in constitutional characteristics and particular life experiences.

According to Witkin (1962) differentiation refers to the formal, as contrasted to the content aspect of a system. As such it constitutes one of two major characteristics of a system; the other characteristic is integration. He stresses that a greater amount of self-differentiation does not imply better integration, more maturity, or good adjustment. He does suggest that greater inner differentiation is associated with greater articulation of experience of the world. Further, he feels greater or lesser differentiation is characteristic of many areas of personal functioning, and it represents in this way a kind of psychological consistency.



Witkin and his associates have investigated many aspects of personality functioning as it relates to the individuals perceptual-cognitive style. The original studies involved three basic measures of this dimension: Rod and Frame Test, Tilting Room-Tilting Chair Tests, and an Embedded Figures Test. They found considerable individual self-consistency on these tests. Witkin postulated two broad categories of perceptual functioning (field-dependence and field-independence) on the basis of the individual's ability to overcome an embedding context. This dimension was, of course, considered to be a continuous dimension involving relatively greater or lesser difficulty separating an item from its context.

Witkin (1962) suggests that a field-independent person tends to experience his surroundings analytically, with objects experienced as discrete from their backgrounds. A field-dependent person tends to experience his surroundings in a relatively global fashion, passively conforming to the influences of the prevailing field or context. Witkin states that a tendency toward an analytic (field-independent) or global (field-dependent) way of experiencing characterizes a person's problem solving activity as well as his perception. Thus, he postulates analytical and global field approaches in individuals, and he sees field-dependence and field-independence as representing the perceptual component of this broader dimension.





Witkin (1965) reports research which indicates distinct personality characteristics are associated with the hypothesized cognitive styles. He reports field dependent individuals tend to have a relatively undifferentiated body concept, rely on external sources for their social and psychological attitudes, and use such defenses as massive repression and primitive denial in threatening situations. Field-independent individuals, on the other hand, tend to have a more articulated body concept, use internal frames of reference for self-definition, and tend to use specialized defenses such as "isolation" during periods of threat. In general, the "analytic" individual's attention to the more important (that is, relevant) parts of a stimulus field results in more efficient input, assimilation, and processing of information.

Witkin (1962) indicated a general trend toward greater differentiation as the child grows older, with relative stability achieved at approximately seventeen years. He suggested the quality of the mother-child interaction patterns was important in hampering or fostering the child's development of differentiation.

Witkin (1962, 1965) noted differences in the development of controls and defenses associated with differences in field approach. He reports field-independent persons have better developed controls and they have greater freedom from disruptive impulse expression. He suggests persons





with a relatively global field approach are more apt than analytical people to show overt anxiety; reflecting, presumably, less effective controls. These differences in anxiety-proneness were also demonstrated by Cohen, Silverman, and Schmajonian (1959).

In terms of pathological processes Witkin (1962, 1965) reports considerable research linking different forms of pathology with field approach. He states that persons with a relatively extreme global field approach are more likely to evidence severe identity problems, with little struggle for maintenance of identity. Convincing studies indicate extremely "global" persons are more likely to be alcoholic, obese, suffer from ulcers and asthma. These syndromes point out problems of dependence are associated with a global field approach. As well, "global" individuals tend to have inadequately developed controls which result in chaotic functioning, passivity, and helplessness. On the other hand, extremely analytical persons tend to be over-controlled and isolated. They tend to suffer from delusions and expansive ideas of grandeur (for example, paranoid schizophrenia).

Gardner (1960, 1964) reports extensive research in which he proposes various "cognitive control principles." His dimension of field-articulation is very similar to Witkin's field-dependence-independence dimension. Gardner (1960) views his cognitive control principles as independent of each other, but he concludes that the various cognitive



structures emerge from a common matrix of constitutional and experiential determinants. Gardner (in Scheier, 1964) considers cognitive controls to be "comprised of enduring arrangements of cognitive processes that shape the expression of intentions under particular types of environmental conditions (p. 147)." Like Witkin he expects relationships between consistencies in cognitive behavior and other aspects of personality organization.

Kagan, Moss, and Sigel (1963) also described a conceptual style that ranged from analytic to non-analytic, though their research involved tests of conceptual categorization rather than perceptual tasks. They report that an analytic style was associated with a reflective attitude, a tendency to differentiate experience, the ability to resist the effects of distracting stimuli on ongoing behavior. The non-analytic style was associated with impulsive behavior, greater reactivity to external stimuli, and less differentiation of complex stimulus situations. They described the non-analytic child as "impulsive, unable to play alone, and unwilling to get involved in mastery tasks (p. 106)." The analytic child was described as "more sedentary, less hyperkinetic, less impulsive, more apt to become involved in tasks and able to become oblivious to the external surroundings (p. 107)." They report stability of preference over time and they suggest differences in boy's and girl's mode of approach could be due to different



causal agents. They find a relationship between cognitive style and dependency as did Witkin.

The present research employed the Hidden Figures Test, Cf-1, as a measure of extent of field dependence. Analytic and global field approach, as defined by Witkin, was related to amount of irrational ideation. An analysis of the components of the major irrational ideas that Ellis contends predispose an individual to emotional disturbance suggests some similarity to characteristics or manifestations of a global field approach. For example, the reliance on external sources for self-acceptance, fear of failure, the definition of self-worth and emotional problems as being a function of external causes, and the excessive dependency on others. It is hypothesized that persons who are prone to illogical or irrational thinking will tend to be relatively global in their field approach. This study attempts to put Ellis' theory in a broader developmental context. It was not suggested there is a causal relationship between "cognitive style" and irrational ideation, but rather that there is a collateral relationship (in Piagetian terms). That is, these particular processes seem the consequence of superordinate cognitive and affective processes.



## CHAPTER III

### DEFINITIONS AND HYPOTHESES

#### A. Definitions

The following operational definitions have been adopted for use in this study.

- (1) Irrational Ideation. The extent of an individual's irrational thinking will be defined by his score on the revised Zingle Irrational Ideas Inventory.
- (2) Anxiety. High anxious subjects will be defined by high scores on the IPAT Anxiety Scale and four subtests of the Objective-Analytic Anxiety Battery. Low Anxious subjects will be defined by low scores on these measures.
- (3) Cognitive Style. A subject who scores highly on the Hidden Figures Test, Cf-1, will be designated as relatively field-independent or analytic. A subject who scores low on the HFT will be designated as relatively field-dependent or global. Thus, subjects will be designated global or analytic on the basis of their ability to differentiate embeddedness in a surrounding perceptual field.







## B. Hypotheses

### 1. Primary Hypotheses

One major hypothesis of this study is that individuals who score highly on the I-I Inventory, and therefore become categorized as "irrational thinkers", will also score higher on tests of anxiety variables.

Hypothesis I: It is hypothesized that individuals with a tendency to irrational thinking will score higher on the Self-Analysis Form (IPAT Anxiety Scale) than individuals not predisposed to irrational thinking.

Hypothesis II: It is hypothesized that irrational thinkers will score higher than non-irrational thinkers on the Objective-Analytic Anxiety Battery subtest 241-G (OA1 - Susceptibility to Annoyance).

Hypothesis III: It is hypothesized that irrational thinkers will score higher than non-irrational thinkers on the Objective-Analytic Anxiety Battery subtest 242-G (OA2 - Honesty In Admitting Common Frailties).

Hypothesis IV: It is hypothesized that irrational thinkers will score higher than non-irrational thinkers on the Objective-Analytic Anxiety Battery subtest 243-G (OA3 - Modesty in Assuming Skill in Untried Performance).



Hypothesis V: It is hypothesized that irrational thinkers will score higher than non-irrational thinkers on the Objective-Analytic Anxiety Battery subtest 244-G (OA4 - Critical Severity versus Indulgent Standards).

In addition to the hypotheses discussed above one other major hypothesis was tested.

Hypothesis VI: It is hypothesized that irrational thinkers will score lower than non-irrational thinkers on the Hidden Figures Test, Cf-1, and thus it is hypothesized that irrational thinkers tend to be relatively more global or field-dependent in their perceptual-cognitive behavior than individuals not predisposed to irrational beliefs.

## 2. Secondary Hypotheses

Comparisons were also made based on sex differences for all seven major variables and their respective subtests, providing correlational data for 27 variables. It is further hypothesized that the I-I Inventory is not a psychologically pure instrument, but that it is a complex measure of many aspects of psychological functioning with specific relatedness to aspects of anxiety.



## CHAPTER IV

### METHOD

#### A. The Sample

Undergraduate students in the Faculty of Education at the University of Alberta served as subjects for this study. The total number was 77; 52 females and 25 males. There was wide variation in age as subjects were drawn from senior classes in the Winter session and Summer session classes. The mean age for the entire sample was 27.86 years, with the youngest subject being 18 years old and the oldest 56 years old. The sample was skewed toward the younger ages with greatest representation in the early twenties. The greater proportion of females in the sample was a function of the classes who volunteered to participate in the study.

For the purpose of testing the major hypotheses the sample was divided into two groups comprising the top and bottom 27 percent of the sample based on the subjects' performance on the Irrational Ideas Inventory. This resulted in two groups of 21 subjects. In the correlational studies and cluster analysis the data for all 77 subjects were utilized.



## B. The Instruments

### 1. Irrational Ideas (Revised Zingle Irrational Ideas Inventory)

In 1965 Zingle developed a 122 item inventory using a 5-point Likert scale to assess the extent of a person's irrational thinking. He reported test-retest reliabilities of .80 over a five week period. Subsequent studies (Conklin, 1965; Hoxter, 1967; Taft, 1968; Sanche, 1968; Fox, 1969) provided further empirical support for this instrument in terms of reliability and validity. Allen (1970) revised the Zingle inventory so that it included only 65 items yet retained its reliability and improved upon its validity. His analysis indicated two major psychological traits were represented: a cluster of 42 items he identified as measuring feelings of insecurity and alienation, and a cluster of 18 items he felt reflected moral rigidity and lack of tolerance. The data implied homogeneity of items and overlap among the eleven discrete irrational ideas proposed by Ellis. Therefore, Allen proposes a single test score representing a tendency toward irrational beliefs is plausible. He indicates an internal consistency estimate of .79 was found for the 65 item inventory, suggesting that the beliefs sampled are sufficiently consistent to be described by a single test score. A test-retest reliability estimate of .71 was reported by MacPhail (1969).





On the basis of the item analysis reported by Allen (1970) the 65 items of the Irrational Ideas Inventory were assigned to "subtests" which corresponded to Ellis' eleven irrational beliefs. However, in so assigning these items to "subtests" no argument is advanced that these "subtests" are statistically separable. The assignment of items was based upon each item's specific relationship in terms of content to Ellis' irrational ideas. At least five items comprised each "subtest."

## 2. IPAT Anxiety Scale (Self-Analysis Form) and Objective-Analytic Anxiety Battery

Both these scales have been derived from the extensive factor analytic studies of Cattell and Scheier. The trait pattern IPAT Anxiety Scale provides an assessment of general free anxiety level. It gives six scores (self-sentiment development, ego strength, suspiciousness or paranoid insecurity, guilt proneness, ergic tension, and total anxiety). In addition, the items are grouped to provide covert and overt sub-scores. The 40 items comprising this instrument were derived from 14 replicated studies involving second order factors on the 16 Personality Factor Questionnaire. The authors report reliability coefficients from .80 to .93, construct validity in the range .85 to .90, and external validity ranging from .30 to .70.



The IPAT Anxiety Scale was primarily designed to measure free-floating manifest anxiety level. It consists of 40 questions distributed among the five anxiety factors or components mentioned above. The items are divided into two groups: (1) those which manifestly refer to anxiety (overt, symptomatic, conscious anxiety) and (2) more covert, hidden purpose, cryptic probes. The 40 items measuring total anxiety were selected from among some four or five thousand item candidates. Each question has three alternative answers, and the responses are arranged so that left-right position preferences cannot speciously affect the anxiety score. The test is easily administered to large groups at one time.

From the extensive studies employing the IPAT Anxiety Scale it seems clear that the scale reflects trait patterns more than state patterns. Retesting of individuals after various time intervals (two weeks to three year intervals) indicates stability coefficients close to the test dependability coefficients (.8) whereas it is felt a state would show change or fluctuation in a few days (Cattell, in Spielberger, 1966). Nonetheless, there appears appreciable contamination of state and trait patterns, and it is doubtful that any instrument measures pure trait or state factors.

The Objective-Analytic Anxiety Battery (1959-60) includes ten subtests of which only four were utilized in this study. The four subtests selected for use in this



study (Susceptibility to Annoyance, Honesty in Admitting Common Frailties, Modesty in Assuming Skill in Untried Performance, and Critical Severity versus Indulgent Standards) have the highest factor loadings with the anxiety variable. Cattell and Scheier report split half reliabilities for these subtests ranging from .67 to .89.

The O-A Anxiety Battery was designed for objective test measurement of anxiety, paralleling the IPAT Anxiety Scale, which was designed for questionnaire measurement of anxiety. In Cattell's (1960) view tests approach objectivity "only insofar as their construction lowers the probability that a person can deliberately fake responses on them (p. 10)." In Cattell's and Scheier's view the O-A Anxiety Battery is a special purpose objective test of anxiety. That is, they feel it is reasonably disguised in purpose, it is relatively insusceptible to faking, and it involves personality implications not evident to a naive observer.

The 1960 revision of the O-A Battery is the end result of 20 years of research involving over 20 separate factor analytic studies and thousands of persons. Of twelve hundred tests considered the best ten were finally selected for the 1960 battery. The subtests chosen for use in this study are considered suitable for state and trait measurement.

Both the IPAT Anxiety Scale and the O-A Anxiety Battery subtests utilized in this study are designed for group or





individual administration. The items on the O-A tests are arranged in order of loading size which maximizes validity per unit of test time on tests which subjects do not complete. The scoring procedure does not require completion of all items.

### 3. Hidden Figures Test, CF-1

This test is a group test adapted from the individual Embedded Figures Test based on designs used by Gottschaldt in the 1920's. Jackson, Messick & Myers (1964) report correlations between the group and individual embedded figures test from .56 to .75. All the variations of the embedded figures tasks have been shown to be reliable and many validity studies have been done. Conklin (1968) and Boersma (1968) report stability coefficients of .71, .61 and .74 in separate studies of first and second year university students. West (1968) reports correlations between part 1 and part 2 of the HFT test as .88 ( $n = 1107$ ), .60 ( $n = 233$ ), .58 ( $n = 99$ ), and .72 ( $n = 46$ ).

The Hidden Figures Test, Cf-1, provides an estimate of the field dependence-independence dimension as defined by Witkin. Subjects are required to find a simple figure embedded in a complex figure. The task is to decide which of five geometrical figures is embedded in a complex pattern. The relative difficulty or ease in perceiving the simple figure defines a subject's field approach.





The test consists of 32 items divided into two sections of 16 items with a ten minute time limit for each section. The test publishers (Educational Testing Service) suggest the Hidden Figures Test is suitable for grades six to sixteen, though they state the difficulty level of the test is high.

### C. Test Administration

All the instruments selected for use in this study were suitable for group administration. The entire battery of tests required approximately seventy-five minutes to administer. All tests were done by all subjects, though there were some incomplete tests. Only the Hidden Figures Test had a time limit. Answers were recorded on IBM answer sheets for scoring by the optical scanner. The tests were administered to groups ranging from seven to twenty-four subjects. One subject, not included in the data analysis, refused to complete the battery after experiencing considerable frustration on the Hidden Figures Test.



## CHAPTER V

### RESULTS

#### A. Statistical Analysis

In order to test the primary hypotheses the sample was divided into the upper and lower 27 percent on the basis of the scores on the Irrational Ideas Inventory. This procedure yielded 21 subjects in each group (Table 1). The data from these groups were then analyzed using the formula for "t" tests between independent samples. As well, F ratios, and their probability levels, for the differences between samples variances were computed. For variables which had unequal variances Welch's approximation to "t" was calculated (Ferguson, 1966).

In order to test the secondary hypotheses several statistical analyses were undertaken. First, Pearson Product Moment correlations were calculated for all twenty-seven variables (seven major variables plus their respective subtests). This procedure also yielded means, standard deviations, and a probability matrix for the various correlations computed. Second, the sample was divided into groups of male and female subjects and "t" tests and Pearson correlations were calculated in the same manner as described above. Third, a cluster analysis of the I-I Inventory was undertaken using a procedure described by Gupta (1968) which



TABLE 1

UPPER AND LOWER 27 PER CENT OF SUBJECTS

ON IRRATIONAL IDEAS INVENTORY

Upper Group	Lower Group	Mean Upper	Mean Lower	S.D. Upper	S.D. Lower	df	t	P-one tail	P-two tail	Welch
n=21	n=21	206.1	149.3	11.04	10.11	40	17.375	<.00000001	<.00000001	<.00000001



in turn is based on a technique developed by Loevinger, DuBois, & Gleser (1953). In this analysis items are grouped into homogeneous clusters on the basis of simple objective criteria; that is, items are included in a cluster only if they raise the KR-20 reliability estimate of the cluster. Allen (1970) describes this method as involving three steps:

Step 1 - a variance-covariance matrix for all the items is calculated.

Step 2 - the three items with the highest KR-20 estimates are grouped in a 'cluster'.

Step 3 - all items are tested to determine which of the remaining items will cause the greatest increase in the KR-20 value. This item is added to the cluster. Items which lower the KR-20 estimate are deleted from further consideration.

Step 3 is repeated until there are less than three items remaining (pp. 21-22).

The computer program employed to provide the cluster analysis (DERS TEST 07) allows several alternative procedures to be used. The deletion option, for example, allows a choice between deleting only the first three variables of a cluster from further analysis, or deleting all variables in a cluster from further analysis. In this study, both alternates were carried out, but the most acceptable analysis derived from the deletion of all variables in a cluster from further analysis.





For the purpose of this study the .05 level was chosen as the level of significance. Since the primary hypotheses were stated in terms of definite, directional differences a one-sided or one-tailed test of significance was utilized. Two sided, or two-tailed, tests of significance were employed in testing the null hypotheses of all applicable secondary hypotheses.

## B. Findings

Table 2 presents the means and standard deviations for the two groups compared on the criterion measures. Table 3 presents the results of the "t" tests, probability levels, and Welch approximations.

### 1. Primary Hypotheses

- (a) Hypothesis I is confirmed. Subjects who scored high on the I-I Inventory also scored higher on the IPAT Anxiety Scale than subjects with low scores on the I-I Inventory ( $p < .0001$ ).
- (b) Hypothesis II is confirmed. Subjects who scored high on the I-I Inventory also scored higher on the Susceptibility to Annoyance questionnaire than did subjects with low scores on the I-I Inventory ( $p < .0001$ ).



TABLE 2

MEANS AND STANDARD DEVIATIONS OF I-I INVENTORY  
UPPER AND LOWER GROUPS ON SEVEN OTHER VARIABLES

Variable	Upper Group Mean	Lower Group Mean	Upper Group S.D.	Lower Group S.D.
Hidden Figures Test	11.75	10.19	6.15	4.87
OA241G	.54	.39	.11	.11
OA242G	.49	.42	.16	.15
OA243G	2.79	2.63	.26	.33
OA244G	2.64	2.34	.39	.49
IPAT Anxiety Scale	38.14	23.20	11.17	10.36
Age	25.32	30.19	5.71	7.92



TABLE 3

T-RATIOS OBTAINED FOR I-I INVENTORY COMPARISON  
GROUPS ON SEVEN VARIABLES

Variable	df	t	p-one tail	p-two tail	Adj. df.	Welch t'	p-one tail	p-two tail
Hidden Figures Test	39	.902	.18617	.37234	36.23	.897	.188	.375
OA241G	40	4.461	.00003**	.00006**	39.89	4.461	<.0001**	.0001**
OA242G	39	1.400	.08465	.16930	38.48	1.398	.0850	.1701
OA243G	36	1.553	.06463	.12926	35.52	1.571	.0625	.1250
OA244G	38	2.102	.02114*	.04228*	37.37	2.127	.0201*	.0401*
IPAT Anxiety Scale	39	4.435	.00003**	.00007**	38.97	4.443	<.0001**	.0001**
Age	40	-2.190	.01719*	.03439*	36.35	-2.190	.0175*	.0350*

\*p <.05

\*\*p <.01



- (c) Hypothesis III is not confirmed. Subjects who scored high on the I-I Inventory tended to score higher on the Honesty in Admitting Common Frailties questionnaire, but this tendency did not reach statistical significance ( $p = .085$ ).
- (d) Hypothesis IV is not confirmed. Subjects who scored high on the I-I Inventory tended to score higher on the Modesty in Assuming Skill in Untried Performance questionnaire, but this tendency did not reach statistical significance ( $p = .06$ ).
- (e) Hypothesis V is confirmed. Subjects who scored high on the I-I Inventory tended to score higher on the Critical Severity vs. Indulgent Standards questionnaire than did subjects with low scores on the I-I Inventory ( $p = .02$ ).
- (f) Hypothesis VI is not confirmed. Subjects who scored high on the I-I Inventory did not tend to score lower on the Hidden Figures Test than subjects with low scores on the I-I Inventory.





## 2. Secondary Hypotheses

When the sex of the subjects was considered it was found that female subjects scored significantly higher than male subjects on the I-I Inventory (Table 4). Several subtests of the I-I Inventory were significantly higher for females than for males, as would be expected from their total score patterns. None of the other variables showed significant mean differences between males and females. (See the Appendix for complete data on t-tests between males and females, 27 variables.) However, the correlational data for the 27 variables suggest a significant correlation between sex and two anxiety scores (IPAT Anxiety Scale,  $p < .05$ ; and Modesty in Assuming Skill in Untried Performance,  $p < .05$ ). Females tended to score higher on these measures, and they showed significantly higher correlations on the IPAT Anxiety Scale subtests as would be expected [Covert,  $p < .01$ ;  $Q_3$  (self-sentiment),  $p < .05$ ; L (suspiciousness),  $p < .05$ ; O (guilt-proneness),  $p < .05$ ]. Within the I-I Inventory itself, female subjects tended to score higher on items which reflected a tendency to seek and need the approval of others and items which suggested an external orientation (for example, belief that happiness or unhappiness is externally caused).

The correlational data for all subjects indicated a tendency for younger persons to score higher on the I-I Inventory than older persons, though this tendency did not



TABLE 4

COMPARISON OF SCORES OBTAINED BY MALE  
AND FEMALE SUBJECTS ON THE I-I INVENTORY

Males	Females	Mean (Males)	Mean (Females)	S.D. (Males)	S.D. (Females)	df	t	p-one tail	p-two tail
n=25	n=52	169.48	180.85	22.50	23.05	75	-2.042	.02235	.04470*

\*p < .05



reach statistical significance ( $p = .08$ ). However, in the sample of high and low scores on the I-I Inventory (21 in each group), the differences in mean ages between the two samples is significantly different ( $p < .05$ ), with low scorers older than high scorers.

The I-I Inventory total score correlated significantly with all its subtest scores with the exception of items reflecting a dependency on others and a belief in the inevitable influence of the past upon the present. As well, I-I Inventory total scores correlated significantly with the OA241G scores ( $p < .001$ ), IPAT Anxiety Scale ( $p < .001$ ), and all the Anxiety Scale subtests except L (suspiciousness) which had a  $p$  equal to .07.

The Hidden Figures Test did not correlate significantly with any of the variables of their subtests. There was some tendency for age to be related to HFT scores, but this inverse relationship did not reach statistical significance ( $p = .10$ ). The Anxiety Scale factor C (ego strength) score tended to be inversely related to HFT scores, that is, low HFT scores were associated with high C scores ( $p = .098$ ).

In addition to the previously noted significant correlation with the I-I Inventory, OA241G (Susceptibility to Annoyance) scores were significantly correlated with the IPAT Anxiety Scale,  $p < .05$ . This correlation seems a function of the Covert items which showed a strong relationship ( $p = .015$ ).



The remaining Objective Analytic Battery subtests (OA242G, OA243G, OA244G) were highly correlated with each other and the IPAT Anxiety Scale ( $p < .001$ ) but did not appear significantly related to the other major variables. As already noted the IPAT Anxiety Scale was found to be significantly correlated with scores on the I-I Inventory, the other anxiety measures, and with sex of the subjects (females scoring higher).

### 3. Cluster Analysis

Previous research and test construction indicated the I-I Inventory was comprised of eleven homogeneous subtests corresponding to Ellis' eleven irrational beliefs. However, a recent statistical investigation of subtest relatedness suggested there were two major structural features within the I-I Inventory (Allen, 1970). Allen found two major clusters of 42 and 18 items which he felt reflected (1) feelings of insecurity, alienation and impotence and (2) moral rigidity and inflexibility. On the basis of this analysis, Allen concluded the I-I Inventory measured two major psychological traits. The present cluster analysis was undertaken to provide greater clarity to the interpretation of I-I Inventory scores, and to see if Allen's results would be replicated.

A direct application of Loevinger's (1953) method, as described previously, has the effect of producing a maximum





number of clusters containing at least three items. In this investigation the 65 items of the I-I Inventory were divided into 10 clusters containing from three to fourteen items. The cluster with the highest internal consistency contained five items. The three largest clusters ranked second, fourth and eighth on the basis of the KR-20 reliability. Listed below are the results of this cluster analysis.

TABLE 5

ITEM CLUSTERS CONTAINED IN THE I-I INVENTORY

CLUSTER #1

5 Items KR-20 estimate .879

ITEM NUMBER	ITEM STEM
6	I worry about little things.
17	I worry over possible misfortunes.
23	My feelings are easily hurt.
38	I worry about tests.
46	I tend to worry over possible troubles.



TABLE 5 (continued)

## CLUSTER #2

3 Items KR-20 estimate .774

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ITEM NUMBER	ITEM STEM
27	I get terribly upset and miserable when things are not the way I would like them to be.
49	When a friend ignores me I become extremely upset.
57	I find it very upsetting when people who are important to me are indifferent to me.

---

## CLUSTER #3

3 Items KR-20 estimate .753

---

ITEM NUMBER	ITEM STEM
9	I like to bear responsibilities alone.
18	I prefer to be alone.
42	I prefer to be independent of others in making decisions.

---

## CLUSTER #4

3 Items KR-20 estimate .731

---

ITEM NUMBER	ITEM STEM
31	My folks do not take time to become acquainted with my problems.
32	The members of my family seem to criticize me a lot.
37	I wish that more affection were shown by more members of my family.

---



TABLE 5 (continued)

## CLUSTER #5

3 Items

KR-20 estimate .713

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ITEM NUMBER	ITEM STEM
<hr/>	
30	I get upset when I hear of people (not relatives or close friends) who are very ill.
44	He that loses his conscience has nothing left that is worth keeping.
58	When a person is no longer interested in doing his best he is done for.

## CLUSTER #6

14 Items

KR-20 estimate .816

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ITEM NUMBER	ITEM STEM
<hr/>	
7	There are people who try to do me harm or hurt me.
13	The good person is usually right.
16	We are justified in refusing to forgive our enemies.
21	Jeers humiliate me even when I know that I am right.
22	Punishment is a sure cure for crime.
35	I usually like to be somewhere else than at home.
47	Many of my fellow students are so unkind or unfriendly that I avoid them.
50	If a person tries hard enough he can be first in anything.
52	It hurts me when my friends are unkind.



TABLE 5 (continued)

ITEM NUMBER	ITEM STEM
53	I worry about the possibility of an atomic attack by some foreign power.
59	The best way to teach a child right from wrong is to spank him when he is wrong.
60	It is impossible at any given time to change one's emotions.
61	It is sinful to doubt the Bible.
64	Persons who are punished for their "sins" usually change for the better.

## CLUSTER #7

14 Items

KR-20 estimate .764

ITEM NUMBER	ITEM STEM
1	I usually object when a person steps in front of me in a line of people.
2	I have sometimes had a nickname which I didn't like very well.
8	I sometimes worry about my health.
11	I prefer to have someone with me when I receive bad news.
12	Sympathy is the most divine passion of the human heart.
15	I find it difficult to take criticism without feeling hurt.
19	I get disturbed when neighbors are very harsh with their little children.
24	Sometimes I am troubled by thoughts of death.





TABLE 5 (continued)

ITEM NUMBER	ITEM STEM
26	I get annoyed when people are impolite to me.
28	I worry about eternity.
33	I get very angry when I miss a bus which passes only a few feet away from me.
36	Other people's problems frequently cause me great concern.
45	My folks appear to doubt whether I will be successful.
48	If a child is brought up in a home where there is much quarrelling and unhappiness he will probably be unhappy in his own marriage.

## CLUSTER #8

10 Items

KR-20 estimate .674

ITEM NUMBER	ITEM STEM
3	I prefer to accept suggestions rather than work them out for myself.
4	Men are created equal in mental capacity.
5	To spare the rod is to spoil the child.
29	Children outgrow their bad habits.
34	I can walk past a graveyard alone at night without feeling uneasy.
40	I feel that life has a great deal more happiness than trouble.
43	A juvenile delinquent will almost surely be a criminal when he becomes an adult.



TABLE 5 (continued)

ITEM NUMBER	ITEM STEM
54	I often spend more time in trying to think of ways of getting out of something than it would take me to do it.
55	I feel my parents have dominated me too much.
65	Most people can be truly outstanding in at least one area of their work.

## CLUSTER #9

4 Items KR-20 estimate .524

ITEM NUMBER	ITEM STEM
41	I can face a difficult task without worry.
51	The police may sometimes be right in giving a man the third degree to make him talk.
56	I know there is a God.
62	It makes me uncomfortable to be different.

## CLUSTER #10

3 Items KR-20 estimate .409

ITEM NUMBER	ITEM STEM
10	It is a big aid to health to say each morning, "Day by day in every way I am getting better and better."
39	When things are not the way I would like them to be, and it is not in my power to change them, I calmly accept things the way they are.
63	I am naturally a lazy person.



TABLE 5 (continued)

## UNCLUSTERED ITEMS

ITEM NUMBER	ITEM STEM
14	Sometimes I feel that no one loves me.
20	I find it easy to set standards of right and wrong.
25	My folks are not reasonable to me when they demand obedience.

On the basis of the observed groupings it is clear several psychological traits are represented. While the groupings do not match the arbitrary division into subtests on the basis of Ellis' criteria, several of the clusters seemed to strongly reflect the irrational belief structure posited by Ellis and Zingle. Cluster number 3 consists solely of items which were selected to represent irrational belief number 8. Clusters number 2 and 4 largely reflect irrational belief number 1. The prime cluster items of cluster number 6 reflect irrational belief number 3. The prime cluster items in cluster number 1 are drawn primarily from irrational belief number 6.

The items in cluster number 1 seem to measure generalized or free-floating anxiety. More specifically, these items seem to reflect marked insecurity about the internal and external environment. This preoccupation with possible misfortune is certainly suggested in Ellis' irrational belief number 6 (the idea that if something is or may be dangerous



or fearsome one should be terribly concerned about it and should keep dwelling on the possibility of its occurring).

Cluster number 2 seems to measure a person's vulnerability, his fear of rejection, his insecurity about himself and how he is perceived by others. As such the cluster is consistent with Ellis' irrational idea number 1 (the idea that it is a dire necessity for an adult human being to be approved by virtually every significant other person in his community).

Cluster number 3 consists entirely of items derived from Ellis' irrational belief number 8 (the idea that one should be dependent on others and needs someone stronger than oneself on whom to rely). Several other interpretations are possible, however. For example, these items also reflect a fear of close relationships, and perhaps an inability to sustain such relationships. Given a certain response set these items might also constitute a reaction formation to a need for others.

Cluster number 4 appears related to cluster number 2 in terms of psychological meaning. These items reflect a dependency on family approval and they imply a sense of alienation or isolation which has its roots in inhibited emotional relationships. This strong need for family approval closely parallels the need expressed in Ellis' irrational idea number 1.

Cluster number 5 seems to reflect a somewhat pessimistic, gloomy world-view with perhaps some fear of losing





important people, things, or aspects of self. These items were drawn from separate item groupings reflecting different aspects of irrational thinking, but they suggest a similar mood or value orientation.

Cluster number 6 is a large cluster (14 items) with many of Ellis' irrational ideas represented. However, the prime cluster items were derived from Ellis' irrational idea number 3 (the idea that certain people are bad, wicked, or villainous and that they should be punished for their villainy). These items do seem to reflect a punitive motive with moralistic overtones and a suggestion of a paranoid trend.

Cluster number 7 is another large cluster (14 items) with a cross section of Ellis' irrational ideas represented. Once again, the prime cluster items seem to revolve around one irrational idea - number 4 (the idea that it is awful and catastrophic when things are not the way one would very much like them to be). However, irrational idea number 10 (the idea that one should become quite upset over other people's problems and disturbances) and number 6 (already cited) are well represented. Psychologically, these items seem focused on a person's insecurity, especially regarding personal worth. The items reflect considerable sensitivity, particularly to rejection or symbols thereof.

Cluster number 8 is a ten-item cluster which does not load strongly on any one irrational idea, with the possible exception of irrational idea number 9 (the idea that one's



past is an all-important determiner of one's present behavior and that because something once strongly affected one's life, it should indefinitely have a similar effect). In this sense there is some passivity and conformity implied, yet it is also combined with some achievement motivation.

Cluster number 9 is a four item cluster which has no primary focus on a particular irrational idea. There is again some conformity and approval-seeking implied, with an aggressive undertone.

Cluster number 10 is a three item cluster which does not load on a particular irrational idea but does imply some denial and passivity.

There were three unclustered items which were drawn from item samples representing different irrational concepts. It is interesting that the strong statement of irrational idea number 1 (item 14) should not be responded to in the manner in which the more subtle expressions of this idea obviously were.

An alternative method of analysis was carried out in an attempt to reduce the number of clusters while increasing the number of items included in each cluster. This method allows an item to be tested many times for inclusion in a cluster. The first method employed tends to produce a maximum number of clusters which measure purer psychological traits. Broader psychological traits are expected from the second method. This assumption derives from the idea that an item rejected at one point because it lowered the KR-20



estimate of the existing cluster might be included later if it raised the internal consistency of the larger cluster, presumably because there is a broader trait measured.

The alternative analysis, however, did not intensify the traits identified in the first cluster analysis. In fact, this second method resulted in 20 clusters ranging from 3 to 16 items. The results did not clarify the significance or psychological meaning of I-I Inventory scores. Seven of the clusters were identical to the clusters identified by the first analysis.

### C. Conclusions

On the basis of the findings in this study the following conclusions can be drawn:

1. Irrational thinkers, as defined by high scores on the I-I Inventory, score higher on several measures of anxiety. These are:
  - (a) IPAT Anxiety Scale (Self-Analysis Form)
  - (b) Objective Analytic Battery subtest 241G  
(Susceptibility to Annoyance)
  - (c) Objective Analytic Battery subtest 244G  
(Critical Severity vs. Indulgent Standards)
2. Female subjects score higher on the I-I Inventory than male subjects. As well, female subjects in this sample tended to score higher on the IPAT



Anxiety Scale and the Objective Analytic Battery subtest 243G (Modesty in Assuming Skill in Untried Performance).

3. Younger subjects tend to score higher on the I-I Inventory than older subjects.
4. There does not appear to be a relationship between method of field approach and tendency to irrational thinking.
5. The I-I Inventory as presently constituted appears to reflect several psychological traits which, in turn, are related to the tendency to incorporate and act upon irrational concepts.

Three of the primary hypotheses were confirmed, while three were not confirmed. In two of three unconfirmed hypotheses a definite trend in the posited direction was noted.





## CHAPTER VI

### DISCUSSION AND IMPLICATIONS

#### A. Discussion

The data obtained from this sample strongly suggest a relationship does exist between irrational thinking and a proneness to respond to certain situations with anxious behavior. The very high correlation found between scores on the IPAT Anxiety Scale and the I-I Inventory ( $p < .0001$ ) suggests that persons who are predisposed to irrational thinking, as defined by Ellis, characteristically react to various life situations with greater anxiety proneness than do individuals less disposed to irrational thinking.

Although the intensity with which the irrational ideas are acted upon cannot be determined from subjects' responses to multiple choice items, it does seem apparent that the self-defeating hypotheses inherent in irrational thinking do lead to interpretations of reality which result in greater anxiety. Given a belief system which is based on the expectation that all significant others approve and love one, it does seem inevitable that one's appraisal of external events will be channelled or focussed in a manner which predisposes one to anxiety about rejection and disapproval.

It can be concluded from the obtained results that individuals who internalize more irrational ideas, or who



more strongly hold irrational concepts, do indeed exhibit a lower threshold for threatening stimuli (for example, rejection, danger, isolation). While there are certainly differences in the defense mechanisms, or adjustive processes employed for limiting the anxious behavior, individuals who demonstrate more irrational thinking would appear to appraise more situations as threatening and therefore, probably exhibit greater apprehension.

Interestingly, the Objective-Analytic subtest which measures Susceptibility to Annoyance proved to be highly correlated with I-I Inventory scores. This anxiety subtest samples a wide variety of irritating circumstances. Irritability has been found to be an important symptom of free anxiety (Cattell, 1960). Furthermore, lack of emotional control is an important element contributing to high irritability and high anxiety. Individuals who are prone to the kind of thinking Ellis considers irrational also demonstrate a tendency to be easily irritated, to lose control in annoying situations. This lack of control seems to derive from the illogical assumptions about others' behavior which Ellis has demonstrated lead to irrational thinking and neurotic behavior. In other words, it seems reasonable to conclude that irritable behavior is in part caused by the kind of self-sentences with which individuals indoctrinate themselves.

Another interesting finding is the strong relationship between high scores on the I-I Inventory and high scores on



the Objective-Analytic Battery subtest 244G. This subtest is interpreted as measuring the hostility aspect of anxiety. The items in this subtest reflect a belief structure which ranges from cynical realism about human nature to an indulgent sentimentality. Those individuals who scored high on the I-I Inventory also tended to emphasize more severe punishment for the careless behaviors illustrated. One of the clusters identified in the cluster analysis of the I-I Inventory definitely appeared to suggest a punitive motive as well. However, items grouped in Irrational Idea number three (blaming, punishing wrong doers) did not correlate highly with scores on OA244G. Further analysis of the obtained data using the cluster groupings as subtests instead of the rather arbitrary Ellisian groupings should establish this punitive motive as an underlying factor in the relationship of I-I Inventory scores and OA244G scores.

Contrary to expectations and previous research indications method of field approach does not seem related to tendency to irrational thinking. In fact, instead of an inverse relationship (high I-I scores related to low HFT scores) there appeared a small positive correlation. One explanation for this paradoxical result seems related to the sample makeup. Females were in the majority, and contrary to many previous research findings (for example, Witkin et al, 1962), did not tend to score lower on the Hidden Figures Test. In actual fact their mean score was higher





than the mean for the male subjects. Since females did tend to score significantly higher on the I-I Inventory this paradoxical performance on the HFT resulted in a non-significant correlation between method of field approach and irrational thinking.

One factor which biased the HFT results was the difficulty level of this test. Despite instructions which minimized the intellectual nature of the task and which tried to reduce anxiety about the task, most subjects found the HFT to be very frustrating. The mean score (10.95) from this sample was lower than mean scores previously obtained (for example, Conklin (1968) reported a mean score of 14; the present researcher's pilot project at the Alberta Guidance Clinic found a mean of 13.5). Because most subjects gave visible and audible indications of their frustration in doing the HFT, it seems safe to conclude that other non-controlled variables were reflected in their scores (for example, frustration tolerance, aggressiveness, perseverance). The obvious anxiety created by this task was not demonstrated in the subjects' responses to other questionnaires and there was no significant relationship between HFT scores and anxiety factors as measured by the questionnaires.

In this sample age seems to be related to willingness to admit to irrational thinking. Younger subjects tended to score higher on the I-I Inventory than older subjects. This





trend is in part a consequence of the influence of the male-female proportion, since there were more females who tended to be younger than males, and females scored higher on the I-I Inventory than males.

The various anxiety instruments proved to be quite consistent when compared to each other. With the exception of the OA241G subtest all the anxiety measures correlated significantly with each other. The OA241G subtest did not correlate highly with two other Objective-Analytic Battery subtests (OA242G, OA243G). Generally, subjects who scored high on any one anxiety measure also scored high on the others. The obtained results tended to confirm the trait pattern aspect of anxiety rather than the state aspects. The IPAT Anxiety Scale was the most discriminating anxiety instrument, with a range from 0 to 56 (possible range 0 to 80).

Female subjects in this sample tended to score higher on three subtests of the I-I Inventory than male subjects. Females seem more prone to irrational thinking which has its roots in concern for the approval and love of significant others, in attributing to external sources the causation for one's happiness or unhappiness, and in over-concern about other people's problems and disturbances. Since females reported greater tendency to irrational thinking than did the male subjects it would seem females will form a greater proportion of the rational-emotive psychotherapist's



caseload insofar as irrational thinking results in social maladjustment and neurotic behavior. The particular irrational ideas to which females appear most susceptible seem to reflect basic, culturally determined roles. A woman's role has heretofore been defined in such a manner that she is indeed more dependent on others, particularly males, and she, as a consequence, would be more involved in and threatened by ideas relative to the approval, love, and acceptance of those on whom she is or will be so dependent.

As noted in Chapter I, some contamination was suspected between the instruments used to measure irrational thinking and anxiety. On examination several items reflect the same underlying aspect of personality (for example, guilt proneness, excessive concern about possible misfortune, self-sentiment). The cluster analysis tends to support the hypothesis that I-I items were derived from similar item populations as anxiety scale items. The first cluster obtained in the cluster analysis is composed of items which are direct expressions of overt manifestations of anxiety or anxiety proneness. The following table illustrates the item similarity between the I-I Inventory and the IPAT Anxiety Scale.



TABLE 6  
COMPARISON OF I-I INVENTORY ITEMS AND  
IPAT ANXIETY SCALE

I-I Items

- (6) I worry about little things.
- (17) I worry over possible misfortunes.
- (46) I tend to worry over possible troubles.

IPAT Anxiety Scale Items

- (24) I tend to get over-excited and "rattled" in upsetting situations.
- (31) I am brought almost to tears by having things go wrong.
- (40) I sometimes get in a state of tension or turmoil as I think over my recent concerns and interests.

The very significant correlation of these two instruments ( $p < .0001$ ) may derive primarily from the fact the items are so similar in content and feeling tone, and only secondarily from the presumed relationship between irrational ideation and anxiety. The complete tests are included in Appendix A.



In the transformation of the I-I Inventory from a 122 item questionnaire to a 65 item questionnaire, some items which seemed more direct expressions of Ellis' irrational ideas were eliminated. The final item selection, while a reliable and more homogeneous (that is, internally consistent) measure of a tendency to irrational thinking, may in fact be less psychologically meaningful or more loaded on factors only minimally related to the concept of irrational ideation. Inspection of the clusters derived in the present investigation suggests several psychological variables are involved. While these variables are directly or indirectly related to irrational belief systems, the total score on the items does not necessarily provide a therapist with information he can apply in counselling. In this sense, as a screening device or psychometric instrument, the I-I Inventory may be losing psychological significance as it acquires statistical significance.

The assessment of irrational tendencies, as defined by Ellis, has been attempted by other researchers. Three instruments which are similar in intent and to some degree, design, were reported in Rational Living (1968). (See Appendix C.) Hartman (1968) devised a 60 item Personal Beliefs Inventory which is very similar in format and scoring to the Irrational Ideas Inventory. The major difference is that Hartman's items are more direct statements of Ellis' irrational ideas. Some items, in fact, are taken verbatim





from Ellis' theory. This kind of direct statement makes interpretation of the results easier in terms of clinical application, though it is a moot point if Hartman's item choices are statistically and psychologically better estimates of irrational thinking.

Gustav (1968) employed a sentence completion technique to obtain an estimate of irrational thinking. She created 10 stems which she felt elicited responses indicative of irrational tendencies. She devised the instrument as a quick way of measuring progress following adult lecture series at the Institute for Rational Living. Whether improvement shown was the result of subjects learning the "correct words" or whether they revealed genuine change is uncertain. Nonetheless, her experience with this instrument did suggest the data obtained were relevant for therapeutic purposes.

Argabrite and Nidorf (1968) also devised an instrument to measure irrational beliefs. They used a 15 item inventory which for the most part retained the exact language of Ellis, with some paraphrasing on several items. The same scoring technique was employed as in the I-I Inventory. They found that their test correlated with other tests of psychopathology, though the correlations were not particularly high. They explain the small correlations by asserting that an irrational belief may not have overt symptoms associated with it. In fact, they propose that an



irrational belief could function as a defense mechanism, binding anxiety and preventing its expression. They conclude, therefore, that overt symptoms must be supplemented by questionnaire techniques if accurate assessment of pathology is expected. Again, this instrument is quite useful to the therapist employing a rational-emotive approach as it does provide clear evidence of particular irrational concepts that have been internalized by an individual.

The instruments discussed above share one quality the I-I Inventory, in its 65 item form, tends to lack. These instruments retain considerable similarity to the exact language which Ellis uses in his discussion of the common irrational ideas in the Western Hemisphere. To this extent they are useful to the rational-emotive psychotherapist as they provide direct evidence of the kind of thinking which leads to personal maladjustment. Moreover, each item assumes greater clarity and significance since its meaning can be less ambiguously interpreted. The I-I Inventory, however, while appearing a good measure of irrational thinking, does not lend itself to easy interpretation, nor can individual items be as clearly understood. For example, there remains uncertainty about which items reflect what irrational tendencies. To this extent it is less useful to the practising counsellor. However, as a research instrument it may have greater value since it does not as easily lend itself to distortion through faking good and faking bad.



The relatively more disguised I-I Inventory items mask the personality implications involved more so than do the direct statements of Ellisian concepts employed in the Argabrite and Nidorf instrument.

## B. Implications

Since there did not appear to be a relationship between irrational ideation and method of field approach, there does not seem any contraindication to the use of active, directive therapy with clients identified as irrational thinkers. Witkin (1965) reports that therapists generally are not willing to accept field-dependent patients for psychotherapy. On the one hand rational-emotive therapy offers a form of therapy particularly suited to field-dependent clients, on the other hand, so called "transference" problems can be expected.

Witkin's research (1965) indicates several interesting interactional effects which seem related to cognitive style. For example, he has shown that psychiatrists who tested extremely field-independent tended to favor either a directive, instructional or a passive, observational approach to their patients in therapy. Relatively more field-dependent therapists favored personal and mutual relations with their patients. The rational-emotive approach involves a more directive, intellectual approach, and it would appear likely that therapists attracted to this approach are more





field-independent. The question of choice of therapy technique as a function of cognitive style remains to be determined, however.

The hypothesized relationship between irrational ideation and cognitive style was not substantiated in this study, but whether or not clients presenting with irrational beliefs perceive the world in a certain way, the method of field-approach appears a significant factor in psychotherapy. For instance, Witkin (1965) reports three characteristics of field-dependent patients which influences the behavior of the therapist: (1) field-dependent patients induce more comments from the therapist, (2) field-dependent patients readily accept the therapist's suggestions, (3) field-dependent patients tend to prolong therapy and to repeatedly solicit support from the therapist. The first two characteristics may be facilitative of rational-emotive therapy, but the last characteristic definitely undermines the goals of rational-emotive therapy. Further, the rational-emotive approach may be too directive and intellectual to sustain a therapeutic relationship with a field-dependent client, particularly if the therapist is extremely field-independent.

The fact that the expected relationship between irrational thinking and cognitive style was not confirmed does lend further support to the theory that therapeutic intervention can alter irrational belief structures. If irrational thinking was related to cognitive style, and if





a person's cognitive style is a relatively stable consistent characteristic of personality, some doubt would exist that therapy could change or alter these irrational tendencies and their behavioral consequences. Witkin (1965) indicates several studies which suggest that a person's cognitive style could not be altered by experimental intervention (for example, drugs, electroconvulsive shock, special training, hypnosis, psychotherapy). Since irrational ideation does not appear to be one of a number of characteristics associated with limited differentiation, the prognosis for elimination of such thinking is good. No shift in cognitive style may be required, but Ellis does propose a radical change in the way his clients interpret behavioral information. In view of Witkin's findings this therapeutic intrusion will likely succeed to the extent that it does not involve a shift in perceptual-cognitive style.

A distinction must be made, of course, between individuals who can function in a field-independent way from those who must and characteristically do function in this manner. Similarly, some distinction must be made between individuals who are bound to irrational belief systems and those who only occasionally and inconsistently apply the self-defeating ideas Ellis outlines to the evaluation of external stimuli. Self-report inventories do not necessarily allow such distinctions to be made, and as mentioned earlier, the



intensity with which the beliefs are adhered to and acted upon is only roughly estimated by the response gradient.

### C. Summary

The present study explored the relationship between irrational ideation, anxiety factors, and cognitive style. Very significant positive correlations were found between irrational beliefs and measures of anxiety, particularly trait factors. Individuals who have internalized irrational ideas seem to be more anxiety prone than individuals who have not internalized irrational attitudes. The A-B-C theory of personality and Spielberger's trait-state conception of anxiety appear congruent in their formulation of how cognitive factors mediate the expression of anxiety. The hypothesized relationship between tendency to incorporate irrational ideas and perceptual cognitive style was not confirmed in this study.

In addition to the main thesis of this research the statistical and psychological qualities of the I-I Inventory were explored. A cluster analysis revealed 10 clusters containing from three to fourteen items. These clusters appeared to reflect several psychological variables directly and indirectly related to irrational thinking. However, some contamination was noted between items on the various anxiety scales and the I-I Inventory. Among the variables which seem manifestations of both anxiety proneness and



indoctrination of irrational ideas are (1) conformity; (2) need for approval; (3) fear of failure; (4) vulnerable self-esteem; (5) defensiveness.

The need for further research to clarify the psychological significance of scores on the I-I Inventory was suggested by the cluster analysis and the correlational data. An interesting finding which requires further exploration was the tendency for females to score higher than males on the I-I Inventory.



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## APPENDICES



## APPENDIX A



## I-I INVENTORY

1970 Rev.

What to do: This is a study of events and experiences in everyday life. You are asked to cooperate seriously and carefully in marking items in this questionnaire. This is not an intelligence test. The best answer to each statement is your own first impression - there are no right or wrong answers. Let your own personal experience or opinion guide you to choose the answer you feel about each statement.

1. I usually object when a person steps in front of me in a line of people.
2. I have sometimes had a nickname which I didn't like very well.
3. I prefer to accept suggestions rather than work them out for myself.
4. Men are created equal in mental capacity.
5. To spare the rod is to spoil the child.
6. I worry about little things.
7. There are people who try to do me harm or hurt me.
8. I sometimes worry about my health.
9. I like to bear responsibilities alone.
10. It is a big aid to health to say each morning, "Day by day in every way I am getting better and better."
11. I prefer to have someone with me when I receive bad news.
12. Sympathy is the most divine passion of the human heart.
13. The good person is usually right.
14. Sometimes I feel that no one loves me.
15. I find it difficult to take criticism without feeling hurt.
16. We are justified in refusing to forgive our enemies.
17. I worry over possible misfortunes.
18. I prefer to be alone.





19. I get disturbed when neighbours are very harsh with their little children.
20. I find it easy to set standards of "right" and "wrong".
21. Jeers humiliate me even when I know that I am right.
22. Punishment is a sure cure for crime.
23. My feelings are easily hurt.
24. Sometimes I am troubled by thoughts of death.
25. My folks are not reasonable to me when they demand obedience.
26. I get annoyed when people are impolite to me.
27. I get terribly upset and miserable when things are not the way I would like them to be.
28. I worry about eternity.
29. Children outgrow their bad habits.
30. I get upset when I hear of people (not relatives or close friends) who are very ill.
31. My folks do not take time to become acquainted with my problems.
32. The members of my family seem to criticize me a lot.
33. I get very angry when I miss a bus which passes only a few feet away from me.
34. I can walk past a graveyard alone at night without feeling uneasy.
35. I usually like to be somewhere else than at home.
36. Other people's problems frequently cause me great concern.
37. I wish that more affection were shown by more members of my family.
38. I worry about tests.
39. When things are not the way I would like them to be, and it is not in my power to change them, I calmly accept things the way they are.



40. I feel that life has a great deal more happiness than trouble.
41. I can face a difficult task without worry.
42. I prefer to be independent of others in making decisions.
43. A juvenile delinquent will almost surely be a criminal when he becomes an adult.
44. He that loses his conscience has nothing left that is worth keeping.
45. My folks appear to doubt whether I will be successful.
46. I tend to worry over possible troubles.
47. Many of my fellow students are so unkind or unfriendly that I avoid them.
48. If a child is brought up in a home where there is much quarrelling and unhappiness he will probably be unhappy in his own marriage.
49. When a friend ignores me I become extremely upset.
50. If a person tries hard enough, he can be first in anything.
51. The police may sometimes be right in giving a man the "third degree" to make him talk.
52. It hurts me when my friends are unkind.
53. I worry about the possibility of an atomic attack by some foreign power.
54. I often spend more time in trying to think of ways of getting out of something than it would take me to do it.
55. I feel my parents have dominated me too much.
56. I know there is a God.
57. I find it very upsetting when people who are important to me are indifferent to me.
58. When a person is no longer interested in doing his best he is done for.
59. The best way to teach a child right from wrong is to spank him when he is wrong.



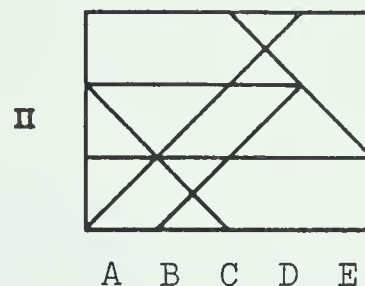
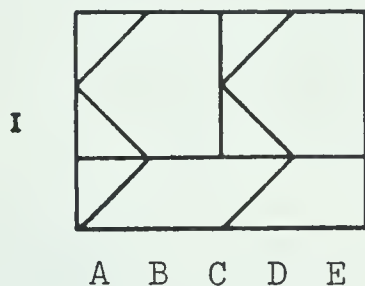
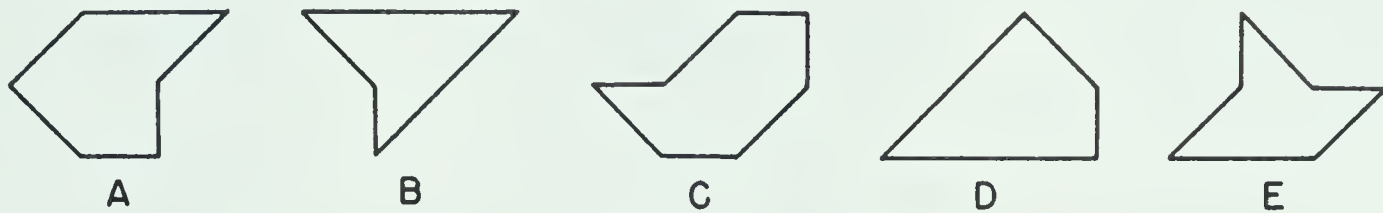
60. It is impossible at any given time to change one's emotions.
61. It is sinful to doubt the Bible.
62. It makes me uncomfortable to be different.
63. I am naturally a lazy person.
64. Persons who are punished for their "sins" usually change for the better.
65. Most people can be truly outstanding in at least one area of their work.



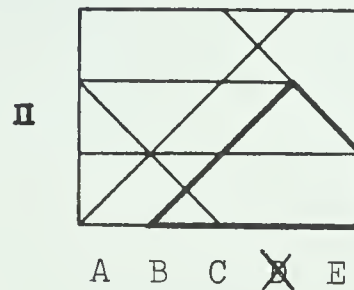
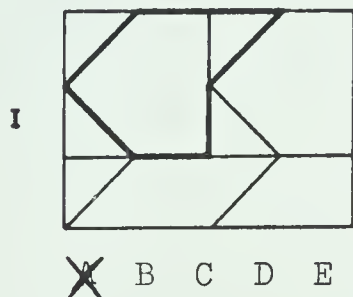
This is a test of your ability to tell which one of five simple figures can be found in a more complex pattern. At the top of each page in this test are five simple figures lettered A, B, C, D, and E. Beneath each row of figures is a page of patterns. Each pattern has a row of letters beneath it. Indicate your answer by putting an X through the letter of the figure which you find in the pattern.

**NOTE:** There is only one of these figures in each pattern, and this figure will always be right side up and exactly the same size as one of the five lettered figures.

Now try these 2 examples.



The figures below show how the figures are included in the problems. Figure A is in the first problem and figure D in the second.

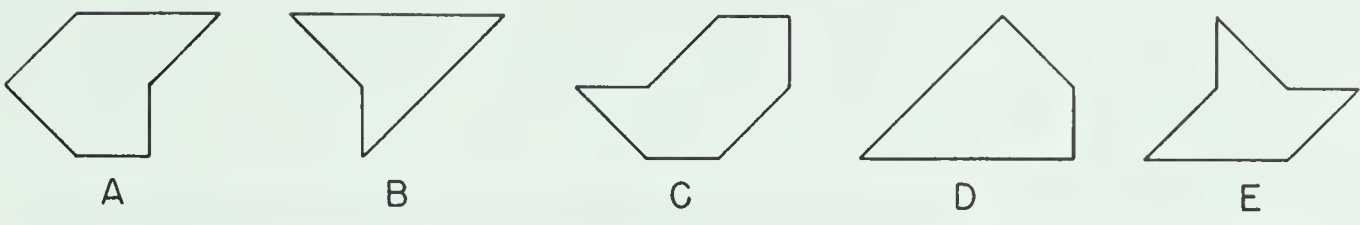


Your score on this test will be the number marked correctly minus a fraction of the number marked incorrectly. Therefore, it will not be to your advantage to guess unless you are able to eliminate one or more of the answer choices as wrong.

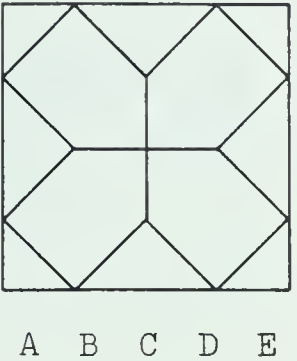
You will have 10 minutes for each of the two parts of this test. Each part has 2 pages. When you have finished Part 1, STOP. Please do not go on to Part 2 until you are asked to do so.



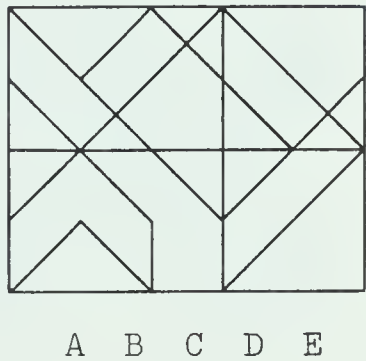




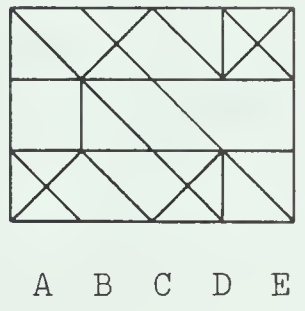
1.



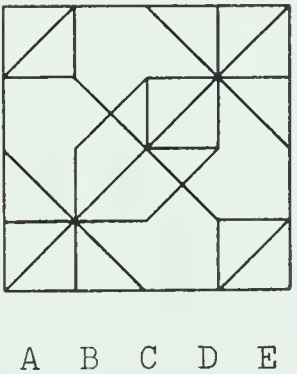
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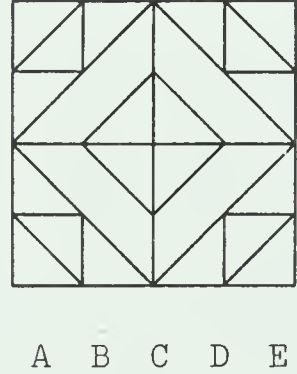
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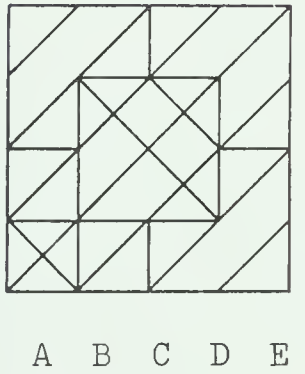
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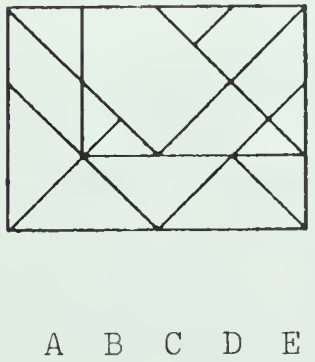
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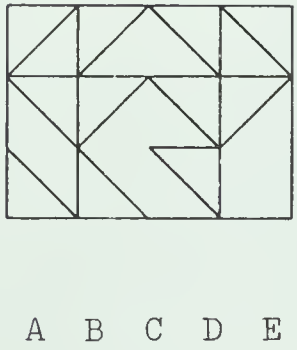
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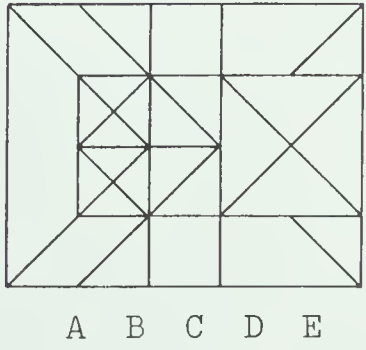
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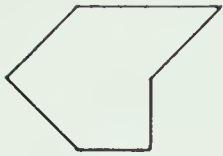
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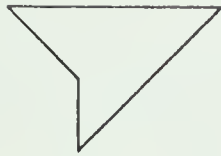
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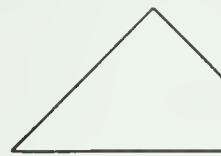
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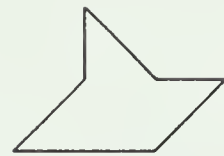
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C

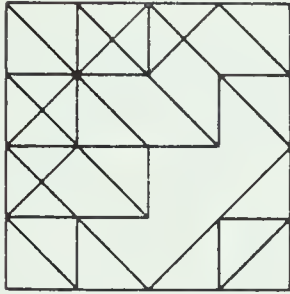


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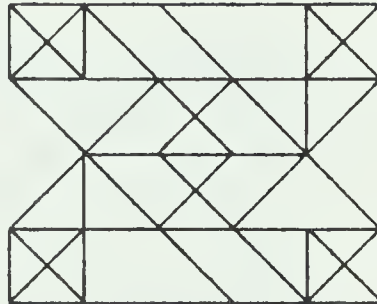
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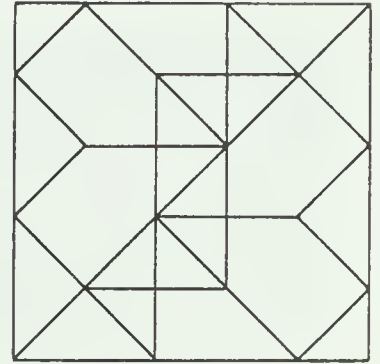
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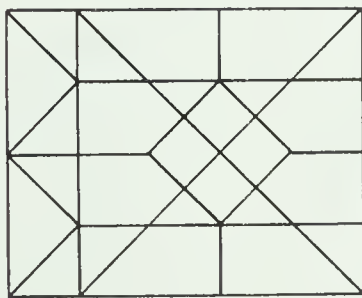
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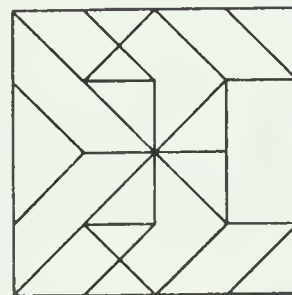
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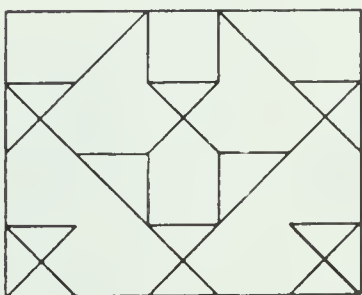
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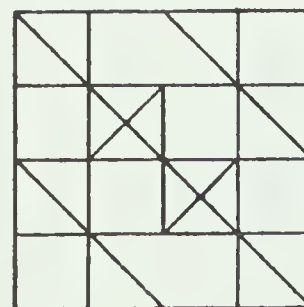
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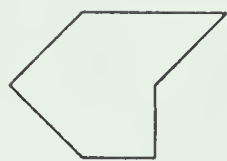
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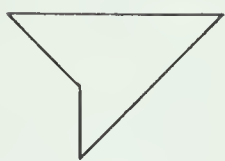


A B C D E





A



B



C

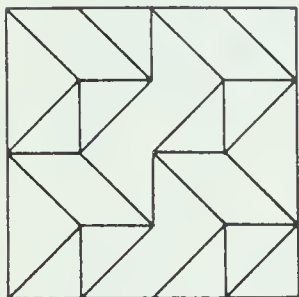


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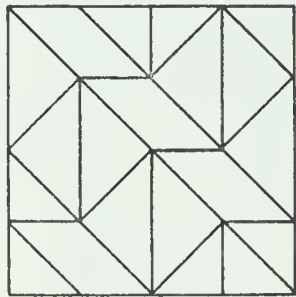
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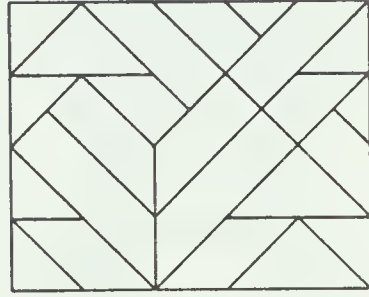
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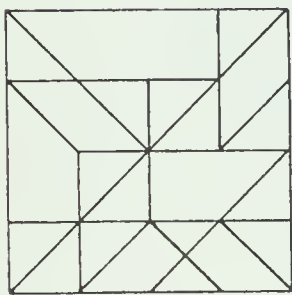
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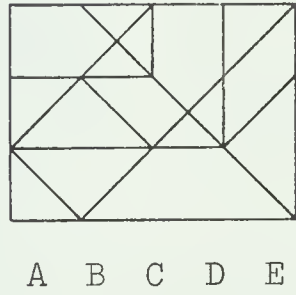
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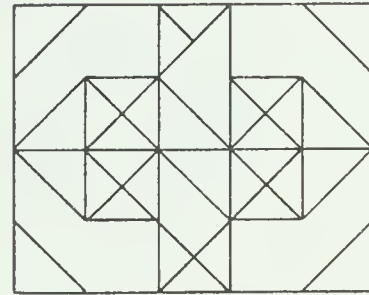
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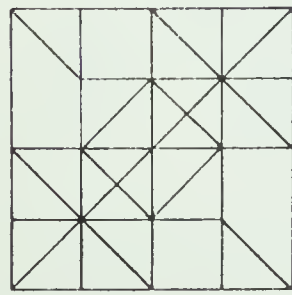
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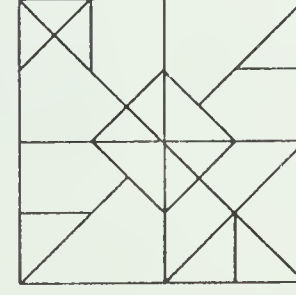
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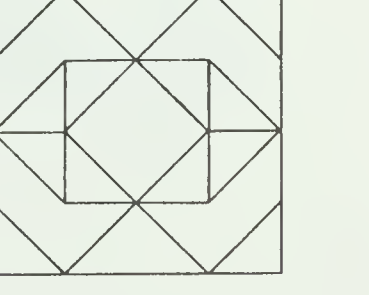
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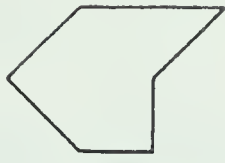
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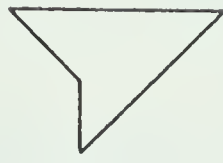


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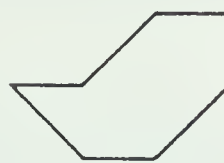




A



B



C

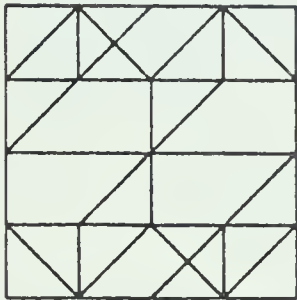


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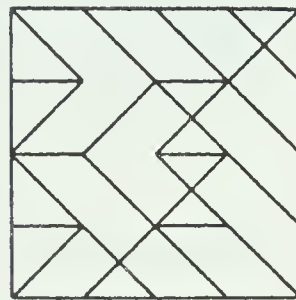
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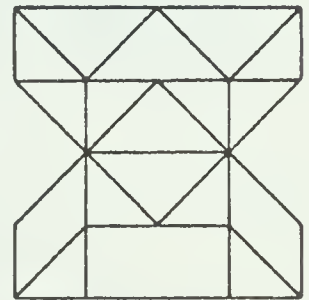
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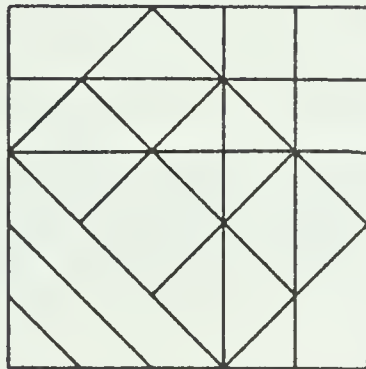
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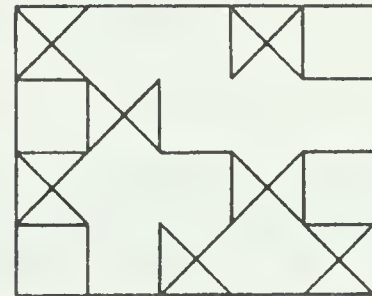
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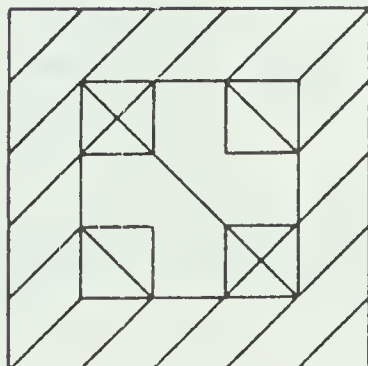
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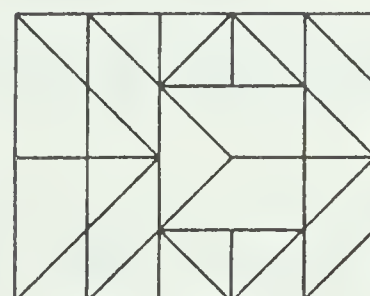
A B C D E

31.



A B C D E

32.



A B C D E





## SELF ANALYSIS FORM

## IPAT

In this questionnaire you will find forty questions, dealing with difficulties that most people experience at one time or another. It will help a lot in self-understanding if you check Yes, No, etc. to each, frankly and truthfully, to describe any problems you may have.

Start with the two simple examples just below, for practice. As you see, each inquiry is actually put in the form of a sentence. By selecting one of the three answers below the sentence you show how it applies to you.

1. I enjoy walking.

Yes..... Occasionally..... No.....

A middle answer is provided for when you cannot definitely say Yes or No. But use it as little as possible.

2. I would rather spend an evening:

(A) talking to people (B) at a movie

A..... In between..... B.....

About half the items inside end in A and B choices like this. B is always on the right. Remember, use the "In between" or "Uncertain" box only if you cannot possibly decide on A or B.

Now:

1. Never pass over an item but give some answer to every single one. Your answers will be entirely confidential.
2. Do not spend time pondering. Answer each immediately, the way you want to at this moment (not last week, or usually). You may have answered questions like this before; but answer them as you feel now.

Most people finish in five minutes; some, in ten. As soon as the examiner signals or tells you to, turn the page and begin.

1957, 1963, by R. B. Cattell



1. I find that my interests, in people and amusements, tend to change fairly rapidly.

True..... In between..... False.....

2. If people think poorly of me I can still go on quite serenely in my own mind.

True..... In between..... False.....

3. I like to wait till I am sure that what I am saying is correct, before I put forward an argument.

Yes..... In between..... No.....

4. I am inclined to let my actions get swayed by feelings of jealousy.

Sometimes..... Seldom..... Never.....

5. If I had my life to live over again I would:

(A) plan very differently (B) want it the same

A..... In between..... B.....

6. I admire my parents in all important matters.

Yes..... In between..... No.....

7. I find it hard to "take 'no' for an answer", even when I know what I ask is impossible.

True..... In between..... False.....

8. I doubt the honesty of people who are more friendly than I would naturally expect them to be.

True..... In between..... False.....

9. In demanding and enforcing obedience my parents (or guardians) were:

(A) always very reasonable (B) often unreasonable

A..... In between..... B.....

10. I need my friends more than they seem to need me.

Rarely..... Sometimes..... Often.....



11. I feel sure that I could "pull myself together" to deal with an emergency.

Always..... Often..... Seldom.....

12. As a child I was afraid of the dark.

Often..... Sometimes..... Never.....

13. People sometimes tell me that I show my excitement in voice and manner too obviously.

Yes..... Uncertain..... No.....

14. If people take advantage of my friendliness, I:

(A) soon forget and forgive (B) resent it and hold it against them

A..... In between..... B.....

15. I find myself upset rather than helped by the kind of personal criticism that many people make.

Often..... Occasionally..... Never.....

16. Often I get angry with people too quickly.

True..... In between..... False.....

17. I feel restless as if I want something but do not know what.

Very rarely..... Sometimes..... Often.....

18. I sometimes doubt whether people I am talking to are really interested in what I am saying.

True..... In between..... False.....

19. I have always been free from any vague feelings of ill-health, such as obscure pains, digestive upsets, awareness of heart action, etc.

True..... Uncertain..... False.....

20. In discussion with some people, I get so annoyed that I can hardly trust myself to speak.

Sometimes..... Rarely..... Never.....



21. Through getting tense I use up more energy than most people in getting things done.  
True..... Uncertain..... False.....
22. I make a point of not being absent-minded or forgetful of details.  
True..... Uncertain..... False.....
23. However difficult and unpleasant the obstacles, I always stick to my original intentions.  
Yes..... In between..... No.....
24. I tend to get over-excited and "rattled" in upsetting situations.  
Yes..... In between..... No.....
25. I occasionally have vivid dreams that disturb my sleep.  
Yes..... In between..... No.....
26. I always have enough energy when faced with difficulties.  
Yes..... In between..... No.....
27. I sometimes feel compelled to count things for no particular purpose.  
True..... Uncertain..... False.....
28. Most people are a little queer mentally, though they do not like to admit it.  
True..... Uncertain..... False.....
29. If I make an awkward social mistake I can soon forget it.  
Yes..... In between..... No.....
30. I feel grouchy and just do not want to see people:  
(A) occasionally (B) rather often  
A..... In between..... B.....
31. I am brought almost to tears by having things go wrong.  
Never..... Very rarely..... Sometimes.....





32. In the midst of social groups I am nevertheless sometimes overcome by feelings of loneliness and worthlessness.

Yes..... In between..... No.....

33. I wake in the night and, through worry, have some difficulty in sleeping again.

Often..... Sometimes..... Never.....

34. My spirits generally stay high no matter how many troubles I meet.

Yes..... In between..... No.....

35. I sometimes get feelings of guilt or remorse over quite small matters.

Yes..... In between..... No.....

36. My nerves get on edge so that certain sounds, e.g., a screechy hinge, are unbearable and give me the shivers.

Often..... Sometimes..... Never.....

37. If something badly upsets me I generally calm down again quite quickly.

True..... Uncertain..... False.....

38. I tend to tremble or perspire when I think of a difficult task ahead.

Yes..... In between..... No.....

39. I usually fall asleep quickly, in a few minutes, when I go to bed.

Yes..... In between..... No.....

40. I sometimes get in a state of tension or turmoil as I think over my recent concerns and interests.

True..... Uncertain..... False.....



## COMMON ANNOYANCES

What to do: Everyone knows that some things irritate him more than others. Below is a list of annoying things. Mark for each item a check in one of the three columns to show whether you would find it very annoying, somewhat annoying, or not annoying. Don't skip any things listed. You don't have to spend a lot of time thinking about each thing. Once you've read and understood it - your first impression is usually the truest and best for you.

1. People who keep their radios loud.
2. People who can't express themselves well.
3. People who spend more money than they can afford to.
4. Bumpy roads.
5. People you have to deal with who are of very low intelligence.
7. People who are scared of insects or small animals.
8. Electric appliances that go out of order.
9. Water dripping from a faucet.
10. People who "know it all."
11. People who drop something accidentally and startle you.
12. People who snore.
13. People who honk car horns to call somebody.
14. Red tape.
15. People who are "sore losers."
16. A button that comes off when you are ready to go out.
17. People who won't take your word for something.
18. People who do all the talking in conversations.
19. Keys that don't work.
20. People who don't dim their lights when their car comes toward yours at night.



21. Smoke-filled rooms.
22. Practical jokes.
23. Soft drinks or beer served warm.
24. People who are always borrowing things.
25. Library books which have been damaged or from which a page has been torn.
26. Crying children.
27. Reformers who never take it easy and have a good time.
28. Waiting in line.
29. Being interrupted in the middle of some work.
30. Hypochondriacs (people who worry constantly about their health).
31. Lurid and "sexy" covers on pocket books sold in drug stores.
32. Store clerks who are indifferent or impolite.
33. Coffee or cocoa spilled from the cup into the saucer.
34. Restaurant tables and counters which aren't kept clean.
35. Water fountains where the water doesn't spurt up high enough.
36. A broken shoe lace.
37. TV or radio commercials.
38. Meeting deadlines.
39. Being splashed by cars while walking on a rainy day.
40. Bad-smelling breath.
41. A traffic jam.
42. Censorship of movies and books.
43. Advertising circulars, etc., in the mail.
44. Stopping for red lights or stop signs while driving.
45. Writing letters.



46. Not enough hot water for a bath or shower.
47. Sheets that feel cold and damp when you get into bed.
48. Highly seasoned or "hot" foods.
49. Holes in your socks.
50. A radio that makes a loud hum or whistle.
51. A car that won't start when you're ready to go somewhere.
52. People who try to get ahead of you in line.
53. Jokes that you have heard before.
54. People who make you hurry to finish a job.
55. Having to do a job all over again.
56. "Dirty" or obscene jokes.
57. Paying more than the usual price for some service or article.
58. The emphasis given sex crimes in popular newspapers.
59. Taking medicine.
60. Pencil points that aren't sharp enough.
61. "Drafty" rooms.
62. Being asked to repeat something you just said.





## DO YOU SOMETIMES.....?

What to do: Sometimes we do things that perhaps we should not do. And sometimes we fail to do things that we should do. No one acts all the time in an ideal way, but it is often hard to be honest and admit our actual behavior. Please try to answer these questions in the way which you believe is true for you. Do not skip any questions.

1. At times, I have been more afraid than I would dare admit.
2. I sometimes fail to do what I know is right, because I lack courage.
3. I sometimes say bad things about a person that I would not tell him to his face.
4. I sometimes think of things that are too bad or "dirty" to talk about.
5. I sometimes wish evil things would happen to my competitors or opponents.
6. At times, I have gone along with the crowd even when my conscience told me this was the wrong action.
7. I sometimes take credit for doing things that were really done mostly by someone else.
8. I always keep secrets that I promise to keep.
9. I have at times lied deliberately.
10. I like to know important people because it makes me feel important.
11. I always have good reasonable and unemotional reasons for doing things.
12. I have sometimes blamed other people for something which was my fault.
13. I have sometimes had improper thoughts about a member of the opposite sex.
14. I always try to do things on time and promptly, instead of putting off things.
15. I have sometimes "picked on" or bullied someone smaller than myself.



16. I sometimes lose my temper over things that I eventually realize are quite unimportant.
17. I have sometimes made nasty remarks about a person, just because people around were doing so.
18. When I find things, I always give them back to their owner, even if I would like very much to keep them.
19. I am always careful with what belongs to others, even if it belongs to someone I dislike very much.
20. I always apologize when I have been rude or discourteous.
21. I am just as polite at home as when I am out in company.
22. I sometimes try to get in good with superiors ("apple polish") in order to gain an advantage for myself.
23. I have always obeyed the law.
24. When people ask me about things I do not really understand, I am always willing to admit my ignorance.
25. I always feel sorry for someone falling ill or having a similar misfortune.
26. I have sometimes hated a person so much that I have had a momentary impulse to kill him.
27. I have sometimes kept books as my own which I have borrowed from the library, when the record has been lost.
28. I have always played absolutely fair in games.
29. As a child, I almost always obeyed my parents.
30. I require proof before believing a person guilty of something.
31. I always admit it when I am wrong.
32. I always put in a honest day's work, when working for pay.
33. I always stand by my friends.
34. I get quite jealous, even of my best friends.
35. I contribute as much time and money to charities as I ought to.



## SURVEY OF EXPERIENCE AND SKILLS

Underline one word at each of the two places in each sentence where four alternatives are given. Try to underline the closest to a correct estimate of how much experience you have had and how good your performance is or would be.

1. I have (often ) been very close to large wild  
           (several times)  
           (once )  
           (never )

animals that were not in a cage. If this were to happen

now, I think I would (handle the situation very well. )  
                           (handle the situation satisfactorily.)  
                           (handle the situation poorly. )  
                           (just go to pieces. )

2. I (never ) play cards. However, with practice I  
      (rarely )  
      (occasionally)  
      (often )

think I might be a(n) (excellent) card player.  
                           (good )  
                           (fair )  
                           (poor )

3. I have had (no ) experience as a salesman;  
                  (little )  
                  (some )  
                  (quite a bit of)

with experience I think I would be (poor ) at  
    (fair )  
 selling.                               (average )  
    (very good)

4. I have (never ) fired a rifle; I think that with  
           (rarely )  
           (sometimes)  
           (often )

practice I would be a (poor ) marksman.  
                           (fair )  
                           (good )  
                           (excellent)



5. I (often ) swim, and I think with practice now,  
 (occasionally)  
 (rarely )  
 (never )

I could be (excellent) at the sport.  
 (good )  
 (average )  
 (fair )

6. I have (never ) had an actual physical fight with a  
 (rarely )  
 (sometimes)  
 (often )

person of my own sex. If I had to fight tomorrow, I  
 would be (very good) against people of my own weight,  
 (good )  
 (average )  
 (poor )

age, and sex.

7. I have (never ) handled high explosives like  
 (once )  
 (a few times)  
 (often )

nitroglycerine, but if the need to do so arose, I think  
 I would do a (very poor ) job of it.  
 (poor )  
 (satisfactory)  
 (good )

8. I have (never ) tried to write short stories. If  
 (once )  
 (occasionally)  
 (often )

I tried now I think I would do something (poor. )  
 (fair. )  
 (good. )  
 (very good.)

9. I have studied foreign languages (very thoroughly )  
 (fairly thoroughly)  
 (a little bit )  
 (not at all )

and I think that with about three months' practice now,





I could be (excellent) at any foreign language I chose  
                   (good            )  
                   (fair            )  
                   (poor            )

to study.

10. I have (fairly often ) been in a crowd of persons that  
               (several times)  
               (once            )  
               (never            )

was getting panicky. If this were to happen now, I  
 think I would (handle the situation very well.        )  
                               (handle the situation satisfactorily.)  
                               (handle the situation quite poorly. )  
                               (go to pieces completely.        )

11. I have (never            ) killed a dangerous snake, but  
               (once            )  
               (several times)  
               (often            )

if the need to do this ever arose, I think I could do  
 it (not at all.        )  
       (very poorly.        )  
       (poorly.            )  
       (satisfactorily.)

12. I have (often            ) been chairman of a meeting. If  
               (occasionally)  
               (rarely            )  
               (never            )

I were to have more practice at it, I would make  
 a(n) (excellent) chairman.  
               (good            )  
               (fair            )  
               (poor            )

13. I have had about ( 0            ) hours of ice skating,  
                               ( 10            )  
                               ( 50            )  
                               (200 or more)

but with a little practice now, I think I should be  
 (very good.)  
 (good.        )  
 (average.     )  
 (fair.        )



14. I have (often ) cut people's hair. With some  
 (occasionally)  
 (rarely )  
 (never )

practice I could be (excellent) at it.  
 (good )  
 (fair )  
 (poor )

15. I have (never ) been a contestant on a quiz  
 (once or twice)  
 (fairly often )  
 (often )

program. If I put my mind to it, I could

(win a lot ) on a quiz program.  
 (win an average amount )  
 (win a little )  
 (win practically nothing)

16. I have (often ) tried modelling in clay. With prac-  
 (sometimes)  
 (rarely )  
 (never )

tice, I believe I could become a (brilliant) sculptor.  
 (very good)  
 (average )  
 (poor )

17. I have (never ) sung, but I think that if I tried  
 (rarely )  
 (occasionally)  
 (often )

I would be a (poor ) singer.  
 (fair )  
 (good )  
 (excellent)

18. I have (never ) acted in a play; I feel I would make  
 (rarely )  
 (sometimes)  
 (often )

a (fine) actor.  
 (good)  
 (fair)  
 (poor)



19. I have (never ) flown a plane. With practice, I  
 (rarely )  
 (occasionally)  
 (often )

would make a (poor ) pilot.  
 (fair )  
 (good )  
 (excellent)

20. I have (never ) gone deep sea fishing. With  
 (rarely )  
 (occasionally)  
 (often )

practice, I would probably make a (poor ) deep sea  
 fisherman. (fair )  
 (good )  
 (excellent)

21. I have (often ) tried painting a house or a room.  
 (sometimes)  
 (rarely )  
 (never )

With practice, I could be a(n) (excellent) house painter.  
 (good )  
 (fair )  
 (poor )

22. I have (often ) spoken on the radio. If I put  
 (several times)  
 (occasionally )  
 (never )

my mind to it, I think I would make a (fair )  
 announcer. (average )  
 (good )  
 (very good)

23. I have (often ) done social dancing; with some  
 (occasionally)  
 (rarely )  
 (never )

practice, I think I would be (excellent ) at it.  
 (very good )  
 (fairly good)  
 (poor )



24. I (daily ) play the piano and with a month's  
 (often )  
 (sometimes)  
 (never )

training now, I think I would do (poorly. )  
 (well. )  
 (very well. )  
 (excellently.)

25. I have had approximately ( 0 ) hours of typing  
 ( 25 )  
 ( 50 )  
 (100 or more)

experience, and with some practice now, I think I could  
 become (fair ) at it.  
 (average )  
 (good )  
 (very good)

26. I have (repeatedly ) tried to breed cats or dogs. I  
 (rather often)  
 (sometimes )  
 (never )

think I would (not ) be successful at it.  
 (possibly )  
 (probably )  
 (certainly)

27. I have (never ) tried dress designing; with  
 (rarely )  
 (occasionally)  
 (often )

practice, I feel I would become (poor ) at it.  
 (fair )  
 (good )  
 (excellent)

28. Have you ever played checkers? (yes, often )  
 (once in a while)  
 (rarely )  
 (never )

What kind of a checker player would you be after a few  
 days' practice now? (excellent)  
 (good )  
 (fair )  
 (poor )





29. Have you ever ridden a horse? (never ) With  
 (rarely )  
 (occasionally)  
 (often )

some practice, how good do you think you could ride?

(poor )  
 (fair )  
 (good )  
 (excellent)

30. Have you ever taught any kind of school?

(yes, for a long time ) Do you think that with ex-  
 (yes, for a short time)  
 (only occasionally )  
 (never )

perience you'd make a good teacher? (yes, definitely)  
 (yes, probably )  
 (I'm not sure )  
 (no, I wouldn't )

31. Have you ever run for election for a club or political  
 office? (never ) If you put your mind to it,  
 (once or twice)  
 (several times)  
 (often )

what would your chances of getting elected to a club  
 office be? (no chance )  
 (perhaps some chance )  
 (a fairly good chance)  
 (a very good chance )

32. Have you ever had to find your way in the woods?

(yes, often ) With some experience, how well would  
 (fairly often)  
 (rarely )  
 (never )

you do at it? (I'd be almost certain to get lost. )  
 (I'd probably get lost. )  
 (I'd be average at finding my way. )  
 (I'd be better than average at finding)  
 my way.



33. Have you ever tried to go around and get people to contribute to charity? (yes, often ) How good do  
(several times)  
(once or twice)  
(never )

you think you would be at this with a little

experience? (very good )  
(good )  
(just average)  
(poor )

34. Have you ever done any skiing? (never )  
(a few times )  
(a dozen times or so )  
(more than a dozen times)

With some practice and the right equipment, how good a

skier do you think you could be? (poor )  
(fair )  
(good )  
(excellent)

35. Have you ever painted a picture in oil paints?

(never ) With practice, how good an artist  
(once )  
(several times)  
(often )

would you be? (poor )  
(fair )  
(good )  
(excellent)



## REAL LIFE JUDGMENTS

This is a test of judgment about human nature, particularly about how widespread certain faults are, and what kind of punishment or treatment can best get rid of them. Indicate your judgment by checking, in each case, one of the five alternatives.

1. When someone tells me about his life, I am more interested in his being truly accurate than in his being imaginative and entertaining.

(1) \_\_\_\_\_ strongly agree  
(2) \_\_\_\_\_ agree  
(3) \_\_\_\_\_ uncertain  
(4) \_\_\_\_\_ disagree  
(5) \_\_\_\_\_ strongly disagree

2. Children in schools nowadays have too easy a time. More effort should be made to bring about higher standards in arithmetic, spelling, and practically useful subjects.

(1) \_\_\_\_\_ strongly agree  
(2) \_\_\_\_\_ agree  
(3) \_\_\_\_\_ uncertain  
(4) \_\_\_\_\_ disagree  
(5) \_\_\_\_\_ strongly disagree

3. It would be a good thing if people thought a little less about punctuality, keeping appointments, etc., and allowed themselves to be more human, casual and carefree.

(1) \_\_\_\_\_ strongly agree  
(2) \_\_\_\_\_ agree  
(3) \_\_\_\_\_ uncertain  
(4) \_\_\_\_\_ disagree  
(5) \_\_\_\_\_ strongly disagree

4. Which of the following sentences would you give to a young man who steals a \$150 engagement ring, which he could not afford to buy, for his girl?

(1) \_\_\_\_\_ a year in jail  
(2) \_\_\_\_\_ a month in jail  
(3) \_\_\_\_\_ a week in jail  
(4) \_\_\_\_\_ a day in jail  
(5) \_\_\_\_\_ nothing but a warning



5. The long history of wars makes it most unlikely that wars will be stopped within the next 500 years.

(1) \_\_\_\_\_ strongly agree  
(2) \_\_\_\_\_ agree  
(3) \_\_\_\_\_ uncertain  
(4) \_\_\_\_\_ disagree  
(5) \_\_\_\_\_ strongly disagree

6. The real wealth of the United States is enough to give pensions to all, without generally lowering living standards.

(1) \_\_\_\_\_ strongly agree  
(2) \_\_\_\_\_ agree  
(3) \_\_\_\_\_ uncertain  
(4) \_\_\_\_\_ disagree  
(5) \_\_\_\_\_ strongly disagree

7. Two fifteen year old boys amused themselves by turning in false fire alarms, costing the city \$10,000. in a year. Should their parents be fined:

(1) \_\_\_\_\_ \$10.  
(2) \_\_\_\_\_ \$50.  
(3) \_\_\_\_\_ \$200.  
(4) \_\_\_\_\_ \$1,000.  
(5) \_\_\_\_\_ \$10,000.

8. An artistic, temperamental, reasonably well-off woman steals things from department stores. What sentence should a judge enforce?

(1) \_\_\_\_\_ nothing  
(2) \_\_\_\_\_ fine her the cost of the goods  
(3) \_\_\_\_\_ fine her ten times the cost  
(4) \_\_\_\_\_ send her to jail for a week  
(5) \_\_\_\_\_ send her to jail for six months

9. Beautiful women tend to have poorer personalities and character than others.

(1) \_\_\_\_\_ strongly agree  
(2) \_\_\_\_\_ agree  
(3) \_\_\_\_\_ uncertain  
(4) \_\_\_\_\_ disagree  
(5) \_\_\_\_\_ strongly disagree





10. While in a parade agitating for greater freedom, an excited student set fire to a house. What punishment should he receive?
- (1) \_\_\_\_\_ nothing
  - (2) \_\_\_\_\_ suspension from school
  - (3) \_\_\_\_\_ a month in jail
  - (4) \_\_\_\_\_ 3 months in jail
  - (5) \_\_\_\_\_ a year in jail
11. Most people would not work hard, except for monetary profit.
- (1) \_\_\_\_\_ strongly agree
  - (2) \_\_\_\_\_ agree
  - (3) \_\_\_\_\_ uncertain
  - (4) \_\_\_\_\_ disagree
  - (5) \_\_\_\_\_ strongly disagree
12. A drunken driver ran over a man on the sidewalk, killing him. What sentence would you enforce?
- (1) \_\_\_\_\_ 6 months in jail
  - (2) \_\_\_\_\_ 1 year in jail
  - (3) \_\_\_\_\_ 5 years in jail
  - (4) \_\_\_\_\_ 10 years in jail
  - (5) \_\_\_\_\_ life imprisonment
13. A man who is taken in by a confidence trickster simply deserves to lose what he loses.
- (1) \_\_\_\_\_ strongly agree
  - (2) \_\_\_\_\_ agree
  - (3) \_\_\_\_\_ uncertain
  - (4) \_\_\_\_\_ disagree
  - (5) \_\_\_\_\_ strongly disagree
14. Illegitimate children should be fully supported by the community, for it is not the child's fault that he has an irresponsible father.
- (1) \_\_\_\_\_ strongly agree
  - (2) \_\_\_\_\_ agree
  - (3) \_\_\_\_\_ uncertain
  - (4) \_\_\_\_\_ disagree
  - (5) \_\_\_\_\_ strongly disagree



15. A soldier, who had been on the march 18 hours, fell asleep while on sentry duty near the enemy. Do you think this requires that:

- (1) \_\_\_\_\_ he be shot
- (2) \_\_\_\_\_ imprisoned for 10 years
- (3) \_\_\_\_\_ he should lose all chance for future promotion
- (4) \_\_\_\_\_ be put on heavy duty for a month
- (5) \_\_\_\_\_ be seriously warned by his supervisor



## APPENDIX B



TABLE A  
COMPARISON OF MALE AND FEMALE SUBJECTS  
ON TWENTY-SIX VARIABLES

Variable	Mean Males	Mean Females	S.D. Males	S.D. Females	df	t	p-two tail
Age	30.28	26.43	5.89	8.64	74	2.01	.048*
I-I	169.48	180.85	22.50	23.05	75	-2.04	.045*
subtest 1	17.08	20.81	4.14	5.06	75	-3.20	.002**
subtest 2	17.04	17.62	3.79	3.41	75	-0.67	.506
subtest 3	13.40	14.48	3.64	3.56	75	-1.24	.220
subtest 4	13.76	15.15	3.50	3.79	75	-1.55	.126
subtest 5	14.04	16.33	3.40	3.72	75	-2.60	.011*
subtest 6	20.32	22.62	4.78	5.18	75	-1.86	.066
subtest 7	10.60	10.88	2.99	2.90	75	-0.40	.690
subtest 8	19.84	18.81	3.57	3.93	75	1.11	.270
subtest 9	16.48	15.37	2.89	2.77	75	1.63	.107
subtest 10	14.36	15.92	3.07	3.37	75	-1.96	.048*
subtest 11	12.56	12.87	3.51	3.25	75	-0.38	.708
HFT	10.28	10.84	4.42	5.45	74	-0.45	.655
OA241G	0.44	0.47	0.14	0.10	75	-1.10	.274
OA242G	0.43	0.43	0.14	0.15	71	0.03	.980
OA243G	2.69	2.66	0.34	0.27	68	0.35	.730
OA244G	2.52	2.46	0.49	0.38	70	0.57	.572
IPAT	29.00	31.94	12.13	11.69	71	-0.96	.339
Overt	14.86	16.58	5.47	5.72	71	-1.18	.243
Covert	14.14	15.67	8.10	6.81	70	-0.82	.417
Q <sub>3</sub>	5.95	6.86	2.75	2.81	70	-1.26	.213
C	3.84	4.31	2.09	1.99	65	-0.86	.393
L	3.25	4.02	1.94	1.59	65	-1.70	.094
O	8.62	9.38	3.60	3.63	71	-0.82	.416
Q <sub>4</sub>	7.86	8.71	4.36	4.34	68	-0.76	.453

\*p < .05  
\*\*p < .01





TABLE B  
PROBABILITY MATRIX FOR CORRELATIONS OBTAINED FOR  
TWENTY-SEVEN VARIABLES; ALL SUBJECTS

Variable	No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Sex	1	-	.04	.04	.01*	.51	.22	.13	.01	.07	.69	.27	.11	.05	.71
Age	2		-	.08	.08	.92	.02	.75	.05	.02	.41	.91	.74	.71	.50
I-I	3			-	**	**	**	**	.00	**	**	.49	.70	**	**
	4				.00	.00	.00	.00	.00	.00	.01	.02	.16	**	.03
Subtest 1	5				-	-	**	**	.00	.00	.21	.27	.77	**	.02
Subtest 2	6					-	.00	.02	.01	.01	.01	.48	.31	.02	**
Subtest 3	7						**	-	.00	**	.01	.91	.10	**	.28
Subtest 4	8						.00		-	.00	.02	.13	.46	**	.04
Subtest 5	9									-	**	.99	.90	*	.14
Subtest 6	10										-	.51	.30	.24	.21
Subtest 7	11											-	.04	.60	.84
Subtest 8	12												-	.82	.22
Subtest 9	13													-	.01
Subtest 10	14														-

\*p < .01  
\*\*p < .001



TABLE B (continued)

PROBABILITY MATRIX FOR CORRELATIONS OBTAINED FOR  
 TWENTY-SEVEN VARIABLES; ALL SUBJECTS

Variable	No.	15	16	17	18	19	20	21	22	23	24	25	26	27
Sex	1	.78	.27	.32	.04	.10	.02	.01	.07	.02	.06	.04	.03	.17
Age	2	.10	.74	.69	.35	.35	.43	.49	.45	.49	.91	.99	.48	.28
I-I	3	.32	.00	.25	.97	.48	.00	.00	.00	.00	.01	.08	.00	.00
Subtest	4	.43	.01	.13	.63	.57	.00	.00	.00	.00	.00	.01	.00	.00
Subtest	5	.62	.07	.62	.88	.51	.01	.01	.03	.03	.02	.21	.01	.04
Subtest	6	.18	.52	.23	.60	.94	.08	.12	.09	.27	.23	.76	.05	.04
Subtest	7	.44	.00	.03	.55	.60	.00	.00	.00	.00	.02	.04	.00	.00
Subtest	8	.79	.01	.22	.64	.33	.00	.00	.01	.00	.01	.04	.00	.01
Subtest	9	.37	.01	.10	.97	.68	.00	.00	.00	.00	.02	.04	.01	.01
Subtest	10	.29	.02	.11	.45	.28	.01	.02	.01	.01	.12	.18	.01	.01
Subtest	11	.19	.46	.71	.27	.91	.03	.03	.05	.37	.01	.01	.09	.14
Subtest	12	.66	.63	.88	.63	.96	.57	.72	.50	.80	.41	.62	.18	.76
Subtest	13	.16	.04	.43	.95	.92	.08	.04	.20	.23	.07	.55	.01	.39
Subtest	14	.15	.24	.94	.85	.13	.43	.62	.36	.95	.59	.65	.10	.70

\*p < .01  
 \*\*p < .001



TABLE B (continued)

PROBABILITY MATRIX FOR CORRELATIONS OBTAINED FOR

TWENTY-SEVEN VARIABLES; ALL SUBJECTS

Variable	No.	15	16	17	18	19	20	21	22	23	24	25	26	27
HFT	15	-	.11	.80	.81	.55	.26	.32	.28	.67	.09	.13	.45	.45
OA 1	16		-	.92	.39	.84	.04	.02	.15	.10	.04	.05	.12	.17
OA 2	17			-	.00	.00	.00	.00	.00	.00	.01	.01	.01	.00
OA 3	18				-	.00	.00	.01	.00	.00	.05	.02	.00	.01
OA 4	19					-	.00	.01	.00	.00	.03	.01	.00	.00
IPAT	20						-	.00	.00	.00	.00	.00	.00	.00
Overt	21							-	.00	.00	.00	.00	.00	.00
Covert	22								-	.00	.00	.00	.00	.00
Q <sub>3</sub>	23									-	.00	.01	.00	.00
C	24										-	.00	.00	.00
L	25											-	.00	.00
O	26												-	.00
Q <sub>4</sub>	27													-

\*p < .01

\*\*p < .001



## APPENDIX C





## PERSONAL BELIEFS INVENTORY

1. An adult must be approved of or loved by almost everyone for almost everything he does.
2. What others think of you is most important.
3. Depending on others is better than depending on oneself.
4. A person should be thoroughly competent, adequate, talented, and intelligent in all possible respects.
5. The main goal and purpose of life is achievement and success.
6. Incompetence in anything whatsoever is an indication that a person is inadequate or valueless.
7. One should blame oneself severely for all mistakes and wrongdoings.
8. Punishing oneself for all errors will help prevent future mistakes.
9. A person should blame others for their mistaken or bad behavior.
10. One should spend considerable time and energy trying to reform others.
11. One can best help others by criticizing them and sharply pointing out the error of their ways.
12. It is natural to get upset by the errors and stupidities of others.
13. Because a certain thing once strongly affected one's life, it should indefinitely affect it.
14. Because a person was once weak and helpless, he must always remain so.
15. Because parents or society taught acceptance of certain traditions, one must go on accepting these traditions.
16. If things are not the way one would like them to be, it is a catastrophe.
17. Other people should make things easier for us, and help with life's difficulties.



18. No one should have to put off present pleasures for future gains.
19. Avoiding life's difficulties and self-responsibilities is easier than facing them.
20. Inertia and inaction are necessary and/or pleasant.
21. One should rebel against doing things, however necessary, if doing them is unpleasant.
22. Much unhappiness is externally caused or created by outside persons and events.
23. A person has virtually no control over his emotions and cannot help feeling bad on many occasions.
24. If something is or may be dangerous or injurious, one should be seriously concerned about it.
25. Worrying about a possible danger will help ward it off or decrease its effect.
26. Certain people are bad, wicked or villainous and should be severely blamed and punished for their sins.
27. Maximum human happiness can be achieved by passively and uncommittedly "enjoying oneself."
28. Any job should be done thoroughly and perfectly if you do it at all.
29. People should observe moral laws more strictly than they do.
30. I get annoyed at being held up by small rules and regulations.
31. I get impatient, and begin to fume and fret, when people delay me unnecessarily.
32. When I'm in a group, I'm always afraid I may say or do something foolish.
33. If you once start doing favors for people, they may just walk all over you.
34. I tend to do or say things I later hate myself for.
35. When things go badly, I tend to blame myself too much.
36. I feel that many people could be described as victims of circumstances beyond their control.



37. The trouble with many people is that they don't take things seriously enough.
38. For most questions there is one right answer, once a person has the facts.
39. People today have forgotten how to feel properly ashamed of themselves.
40. I set a high standard for myself and feel others should do the same.
41. Criticism makes me very nervous and anxious.
42. I often do whatever makes me feel good at the moment, even at the cost of some distant goal.
43. I am so touchy on some subjects that I can't talk about them.
44. A large number of people are guilty of bad sexual conduct.
45. Some of my family and/or friends have habits that bother and annoy me very much.
46. My feelings are easily hurt.
47. I feel self-conscious and uncomfortable when in the presence of those whom I consider to be my superiors.
48. I worry quite a bit over possible misfortune.
49. At times I think I am no good at all.
50. I often get excited or upset when things go wrong.
51. I shrink from facing a crisis or difficulty.
52. I have reason for feeling jealous of one or more members of my family.
53. It makes me angry and upset when other people interfere with my daily activity.
54. I often become depressed because of my own deficiencies or shortcomings.
55. I often feel guilty because of the sins I have committed.
56. I tend to become terribly upset and miserable when things are not the way I would like them to be.



57. There is invariably a right, precise and perfect solution to human problems and it is catastrophic when this perfect solution isn't found.
58. You owe obedience to your parents just because they are your parents.
59. I tend to take myself and others too seriously.
60. It is realistic to expect that there should be no incompatibility in marriage.





## GUSTAV SENTENCE COMPLETION TEST

Directions: 1. Write your name on the back of this sheet.

2. Complete the following sentences as rapidly as you can, expressing your real feelings. Make a complete sentence. Try to do every one.

1. I can work best at \_\_\_\_\_.
2. High standards of performance \_\_\_\_\_.
3. Success is \_\_\_\_\_.
4. My sorrows are caused by \_\_\_\_\_.
5. When my plans are upset \_\_\_\_\_.
6. I feel the most proud of \_\_\_\_\_.
7. When someone criticizes me \_\_\_\_\_.
8. My happiness depends on \_\_\_\_\_.
9. As I think back, my childhood caused \_\_\_\_\_.
10. I enjoy \_\_\_\_\_.



## 15 QUESTIONS FOR RATING REASON

- 1A) I feel strongly that some people are evil, immoral or bad, and should be severely blamed and/or severely punished for their acts.
- 1B)  
1C)  
1D)
- 1E) I feel that people who do "evil" (inappropriate or antisocial) acts are deficient, ignorant or psychologically disturbed, and should be corrected (if possible), tolerated, avoided or ignored.
- (To conserve space, the intermediate-answer positions for statements 2-15 have been eliminated.)
- 2A) The so-called easy way is invariably the much harder way in the long run. The only way to solve difficult problems is to face them squarely.
- 2E) It is easier to avoid than to face certain life difficulties and self-responsibilities.
- 3A) I usually become quite upset over other people's problems and disturbances, and try to force them to change if I can.
- 3E) Other people's deficiencies are largely their problems; putting pressure on them to change is usually least likely to help them to do so.
- 4A) Virtually all human unhappiness is caused or sustained by the view which one takes of things rather than by the things themselves.
- 4E) Human unhappiness is externally caused, and people have little or no ability to control their sorrows and disturbances.
- 5A) One's past history is an all-important determiner of one's present behavior, and because something once strongly affected one's life it will indefinitely have a similar effect.
- 5E) One should learn from one's past experiences, but not be overly attached to or prejudiced by them.
- 6A) One should do, rather than always trying or expecting to do well. One should accept oneself as imperfect, with general human limitations and specific individual fallibilities.



- 6E) One should be thoroughly competent, adequate, and achieving in almost all possible respects if one is to consider oneself worthwhile.
- 7A) If something is or may be dangerous or fearsome, one should be terribly concerned about it, and should keep dwelling on the possibility of its occurring.
- 7E) If something is or may be dangerous or fearsome, one should frankly face it and try to render it non-dangerous. When this is impossible, one should think of other things and stop telling oneself what a terrible situation one is in.
- 8A) I usually stand on my own feet, and have faith in myself and my ability to meet difficult circumstances of living.
- 8E) I feel dependent on others and need someone stronger than myself on whom to rely.
- 9A) It is a great necessity for me to be loved or approved by virtually every significant other person in my group or community.
- 9E) I concentrate on obtaining my own self-respect, not on securing other people's approval.
- 10A) It is too bad when things are not the way one would like them to be, and one should try to change or control them. But if this is impossible, one had better become resigned to their existence and stop telling oneself how awful they are.
- 10E) It is awful and catastrophic when things are not the way one would very much like them to be.
- 11A) Human happiness can be achieved by inertia and inaction.
- 11E) Humans tend to be happiest when they are actively and vitally absorbed in creative pursuits, or when they are devoting themselves to people or projects outside themselves.
- 12A) A person has enormous control over his or her emotions, if he or she chooses to work at controlling them.
- 12E) I find that I have virtually no control over my emotions, and that I cannot help feeling certain things.



- 13A) There is invariably a right, precise and perfect solution to human problems, and it is catastrophic if this perfect solution is not found.
- 13E) Rather than trying or expecting to always be right, precise, and/or perfect, I work at improving things so that on each successive occasion they (and I) will be "less wrong" than the time before, if possible.
- 14A) A person should compare his performance, if necessary, with his capabilities and/or his past performance, not with other people's performances.
- 14E) The only way a person can tell how well he is doing, is to look around and see how others are doing, and then try to do better than them.
- 15A) I am very religious and feel that my "luck" or success in life depends on how strongly I maintain my faith.
- 15E) I am very irreligious and feel that my success in life depends on my efforts and luck.











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